Bibliography of Oceanographic Atlases Covering Canadian Ocean Waters

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CONTRACTOR REPORT NO. 6

October 1981

MARINE ENVIRONMENTAL DATA SERVICE

CONTRACTOR REPORT NO. 6

Bibliography of Oceanographic Atlases covering Canadian Ocean Waters

Acres Consulting Services Limited
Toronto

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OTTAWA, CANADA

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Scientific Authority - J.R. Keeley, MEDS

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Ottawa, 1981
MEDS8101406ZE

Abstract

This report is a bibliography of atlases primarily containing physical oceanographic material from Canadian waters. Entries are organized alphabetically by author, and contents are summarized in a parameter code. Where it is possible, a full bibliographic reference and abstract are provided with each entry. Geographic maps of Canada for each parameter, which are annotated by reference numbers, are also presented. These allow quick reference to material by geographic area and parameter. Finally, a list is provided of the information souces consulted in the compilation of this report.

Résumé

Le présent rapport constitue une bibliographie des atlas qui portent essentiellement sur l'océanographie physique des eaux canadiennes. Les titres sont classés dans l'ordre alphabétique des auteurs, et le contenu est résumé sous la forme d'un code paramètre. Lorsque cela est possible, une référence bibliographique et un résumé complets sont fournis avec chaque titre. Des cartes géographiques du Canada pour chaque paramètre, qui sont annotées par numéro de référence, sont également présentées. Ceci permet de se reporter rapidement aux documents à l'aide de la zone géographique et du paramètre. Pour terminer, on fournit une liste des souces de renseignements consultées lors de la compilation du présent rapport.

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INTRODUCTION

The Contract under which the work on this project was carried out specified that this report consist of a bibliography of atlas-type material covering Canadian ocean waters and oceanographic parameters. The report has been divided into three parts, as follows:

Part 1 - Parameter Maps
Part 2 - Bibliography
Part 3 - Information Sources

Part 2 - Bibliography is the heart of the report, being a standard bibliography of atlases arranged alphabetically by author's surname.

It is expected that one use of the bibliography will be to show the extent of the atlas coverage of a particular oceanographic parameter in a particular geographic area, for example, currents in the Arctic Ocean. To facilitate this reference process, Part 1 - Parameter Maps has been created to display on a map the geographical coverage of each atlas for each parameter. The parameters covered in this report are listed below, follwed by the symbol used for each in the bibliography.

1.	Waves	W
2.	Currents	Cu
3.	Temperature	Te
4.	Salinity	S
5.	Density	D
6.	Sea Ice	I
7.	Tides	T
8.	Tsunamis, storm surges	Ts
9.	Turbidity	Tu
10.	Chemical nutrients - Silicates - Phosphates - Nitrates	Ch
11.	Plankton	P
12.	Biology	B
13.	Undetermined	G.

The thirteenth parameter has been included in order to classify atlas material that may not have been accompanied with an abstract or was not inspected in the course of this work. If the title gave no indication of the parameter coverage then the material in question was classified as undetermined.

The geographical area covered can be generally described as Canadian - contiguous oceans, namely northwest Atlantic Ocean, northeast Pacific Ocean, and the Arctic Ocean, but includes all waters abutting Canada, for example Hudson Bay and the Beaufort Sea. The specific coordinates used to delimit the area studied are 35° N to 90° N and 40° W to 180° W.

The decision criteria for qualification as "atlas-type" material are set out below.

Include if:

1. "Atlas" appears in the publication's title, or
2. Material collected from a single expedition over a large geographic area, for example the Meteor expeditions, or
3. Material collected at a small number of sites but over a long period of time, usually more than three years, or
4. Material collected from more than one cruise over a smaller area than 2. or a shorter time than 3. but that is presented in an aggregated form and claimed to be, in some way, representative.

Reject if:

1. Publication includes only data, or
2. Presentations are results generated from analytical models rather than direct observations, or
3. Publication is not original source of atlas material. For example, National Geographic Society maps are frequently compiled from other atlases and are thus excluded, as are text books, or
4. Publication is not publically available. For example, maps classified as secret by the Department of National Defense are rejected. Also rejected are maps or atlases that may be generated from electronically-stored data at an individual's request but are not published for general sale. It is our understanding that electronic data banks are being catalogued by another project.

The time constraints on this project have precluded ordering and inspection of every document listed in the bibliography. Where a decision on inclusion could not be made on the above criteria we have included the document listing, prefering to err on the side of commission rather than ommission.

PART 1

PARAMETER MAPS

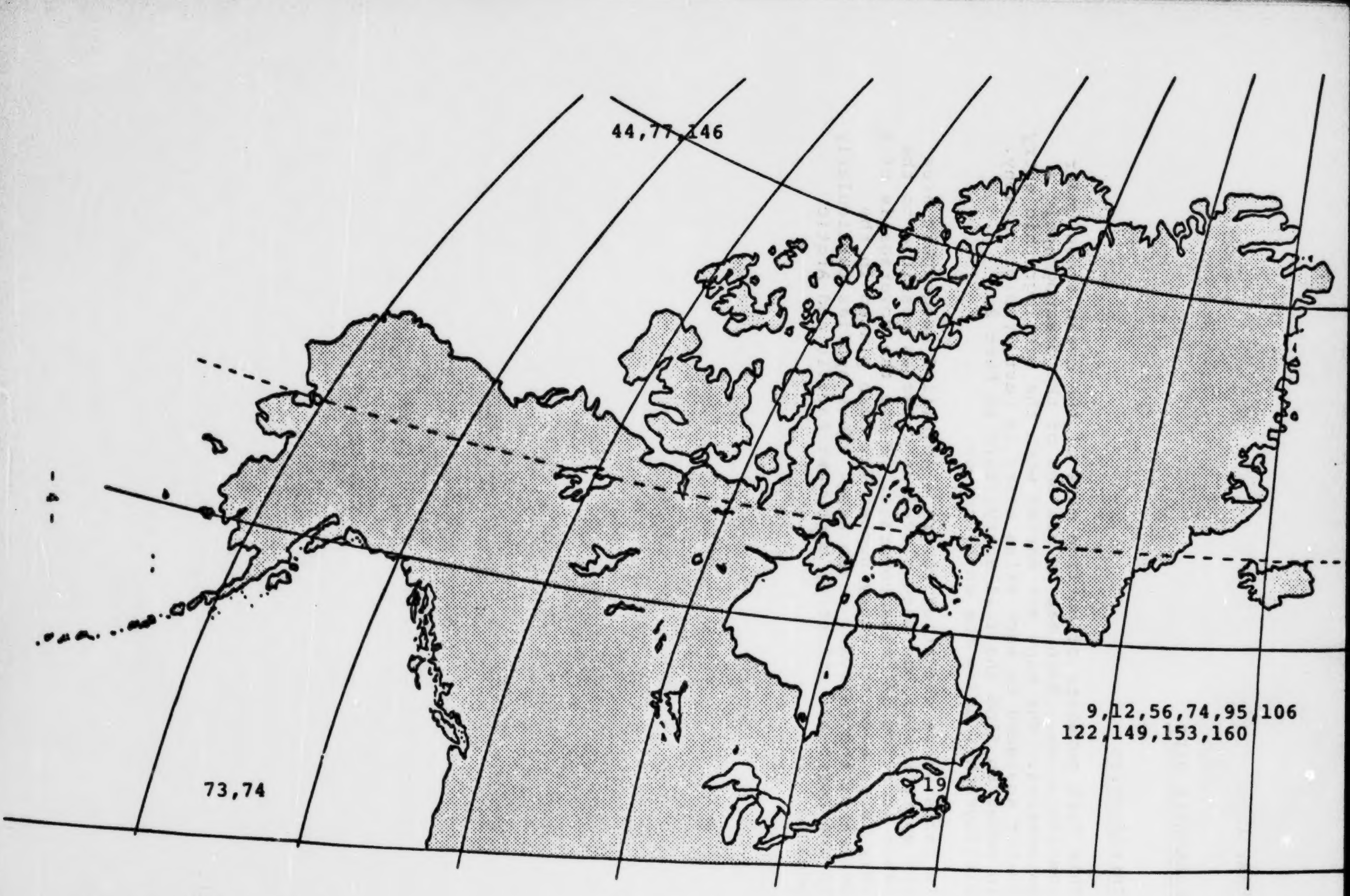
PART 1

PARAMETER MAPS

Introduction

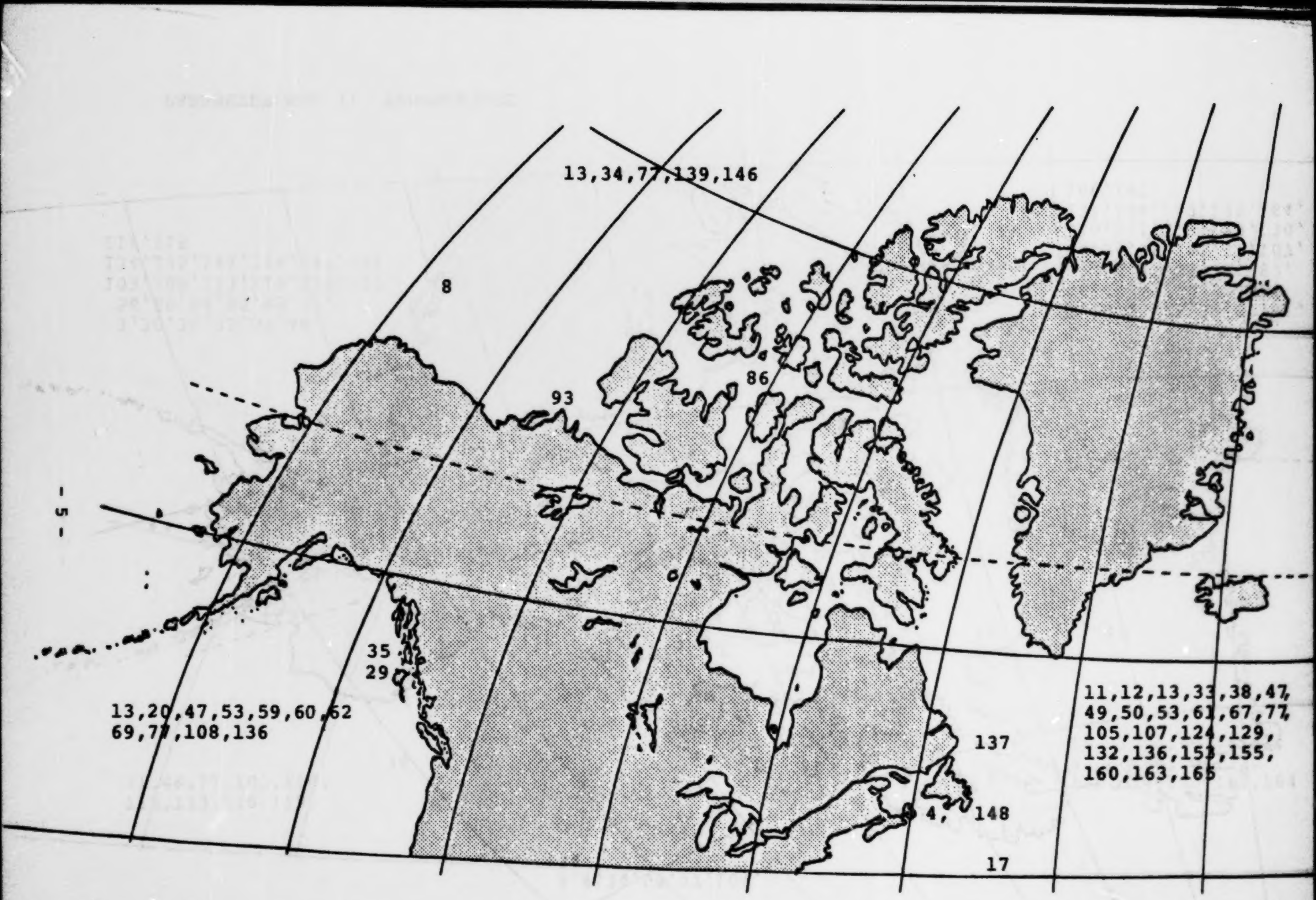
This Part consists of outline maps of the ocean areas under consideration. Each map covers one of the oceanographic parameters. The maps are marked with the bibliographic entry number assigned to each atlas entry in Part 2, Bibliography. In order to find the full entry, turn to Part 2, Bibliography, using the entry number.

In cases where the atlas covers a localized geographic area the entry number has been placed as close as possible to the exact location of atlas coverage. Where the coverage is of a very large area the entry number has been placed in the centre of the relevant ocean area. This applies particularly to the northeast Atlantic, northwest Pacific and Arctic Oceans.


44,77,146
73,74
9,12,56,74,95,106
122,149,153,160
19

PARAMETER MAP 1: WAVES

LOCATION UNSPECIFIED:5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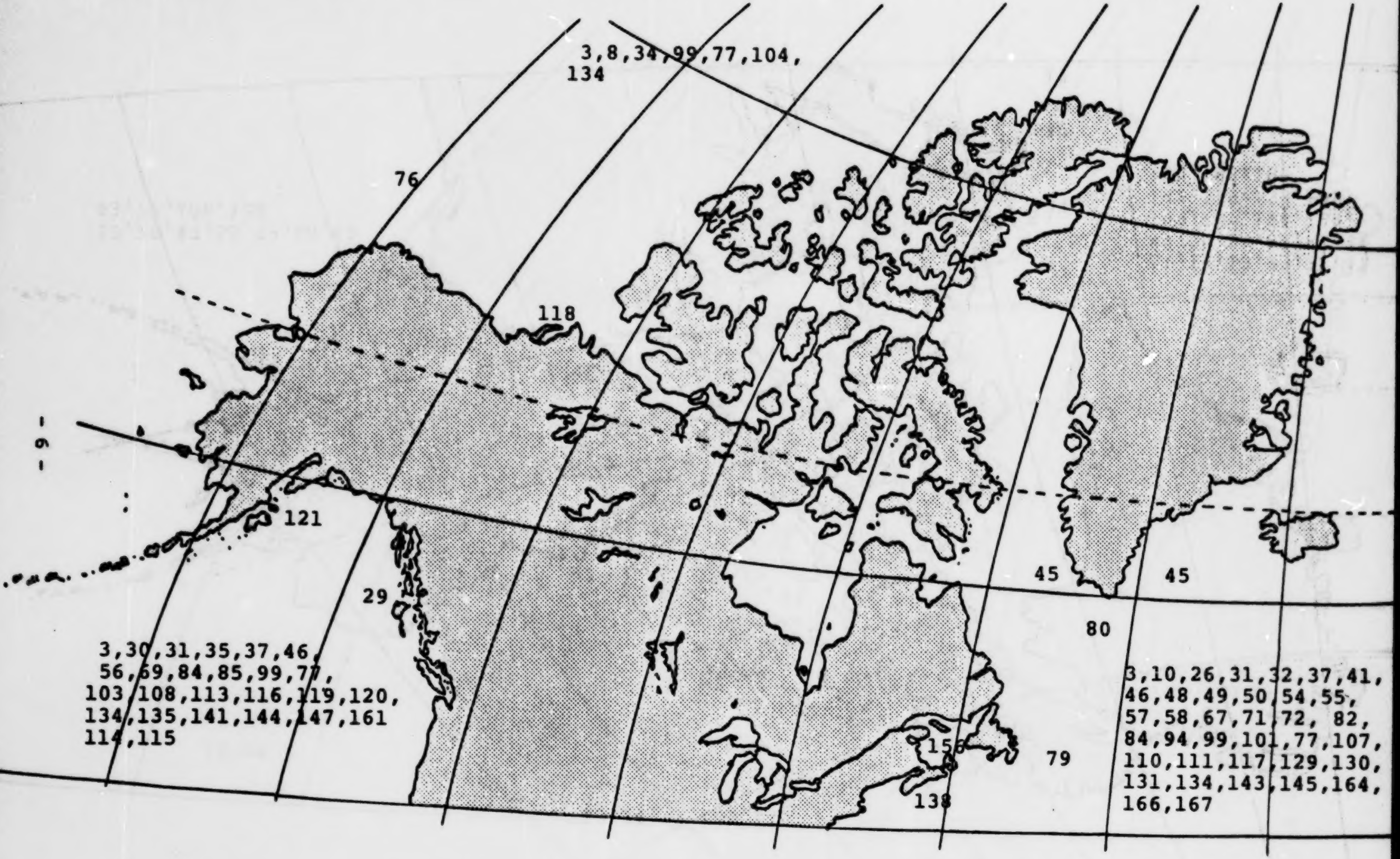
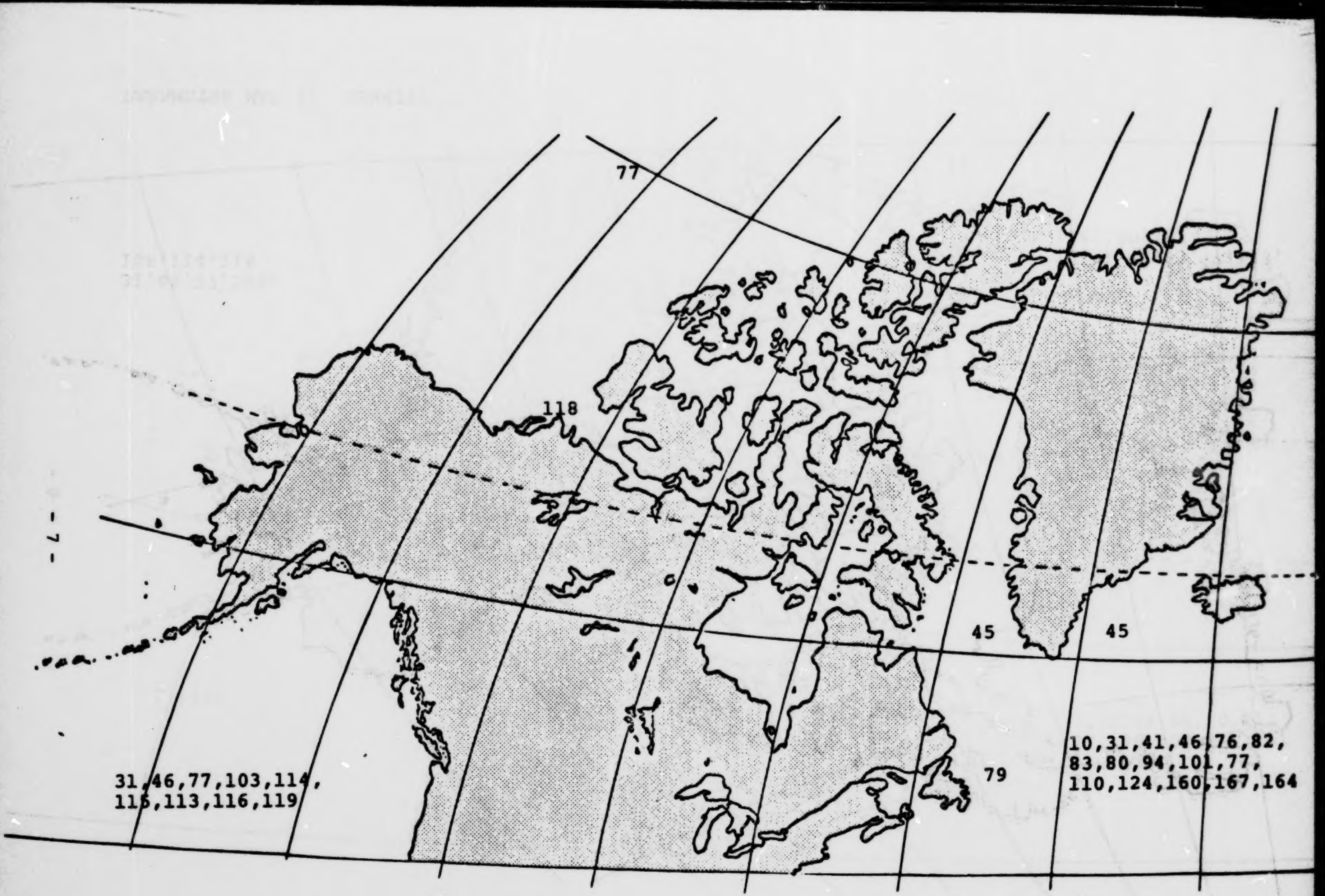
86
93
35
29
13,20,47,53,59,60,62
69,77,108,136
11,12,13,33,38,47,
49,50,53,61,67,77,
105,107,124,129,
132,136,153,155,
160,163,165
137
4,
148
17

PARAMETER MAP 2: CURRENTS

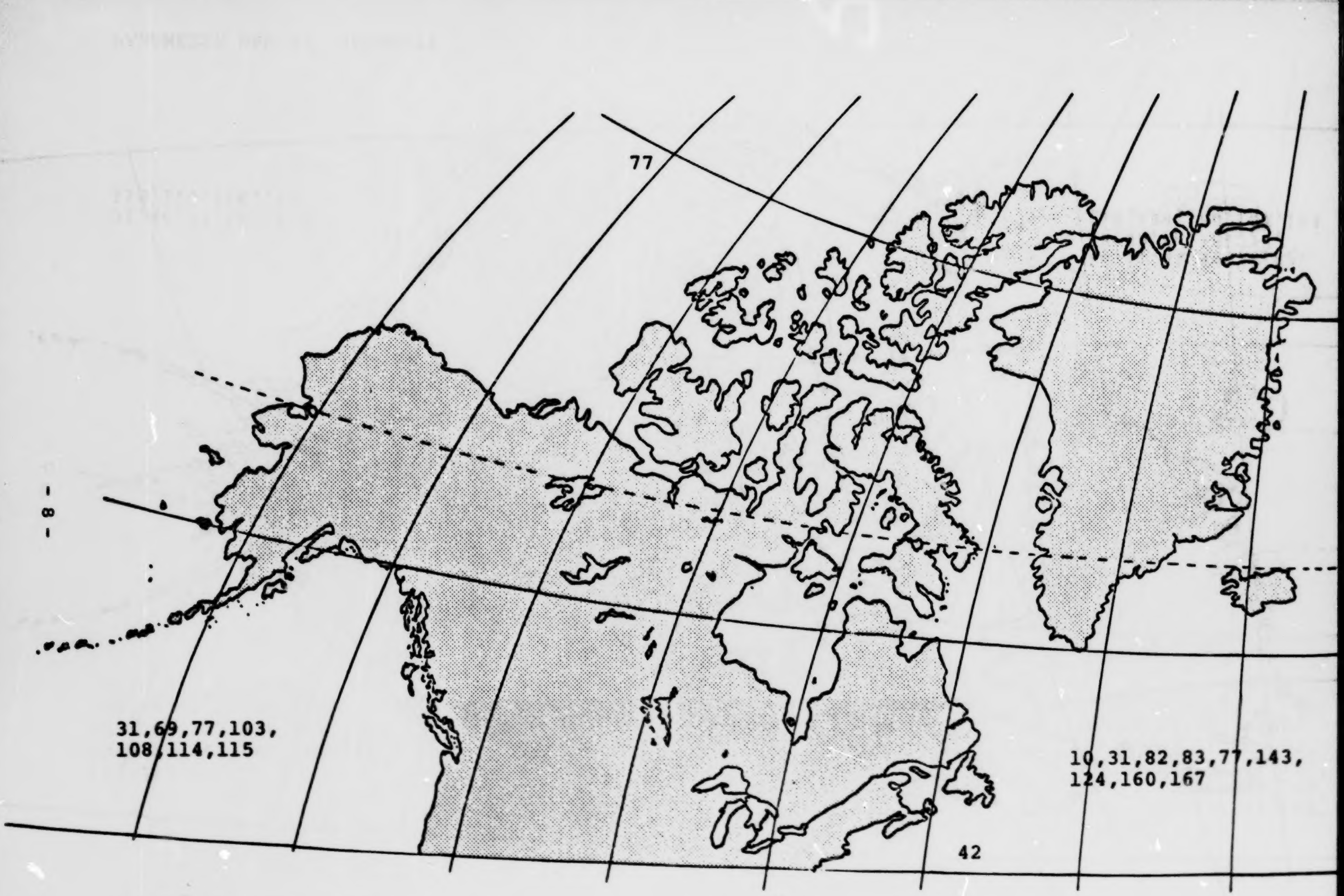
LOCATION UNSPECIFIED: 5,37


3,8,34,99,77,104,
134
76
118
121
29
3,30,31,35,37,46,
56,69,84,85,99,77,
103,108,113,116,119,120,
134,135,141,144,147,161
114,115
45
45
80
79
156
138
3,10,26,31,32,37,41,
46,48,49,50,54,55,
57,58,67,71,72, 82,
84,94,99,101,77,107,
110,111,117,129,130,
131,134,143,145,164,
166,167

PARAMETER MAP 3: TEMPERATURE


77
118
45
45
79
31,46,77,103,114,
115,113,116,119
10,31,41,46,76,82,
83,80,94,101,77,
110,124,160,167,164

PARAMETER MAP 4: SALINITY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31,69,77,103,
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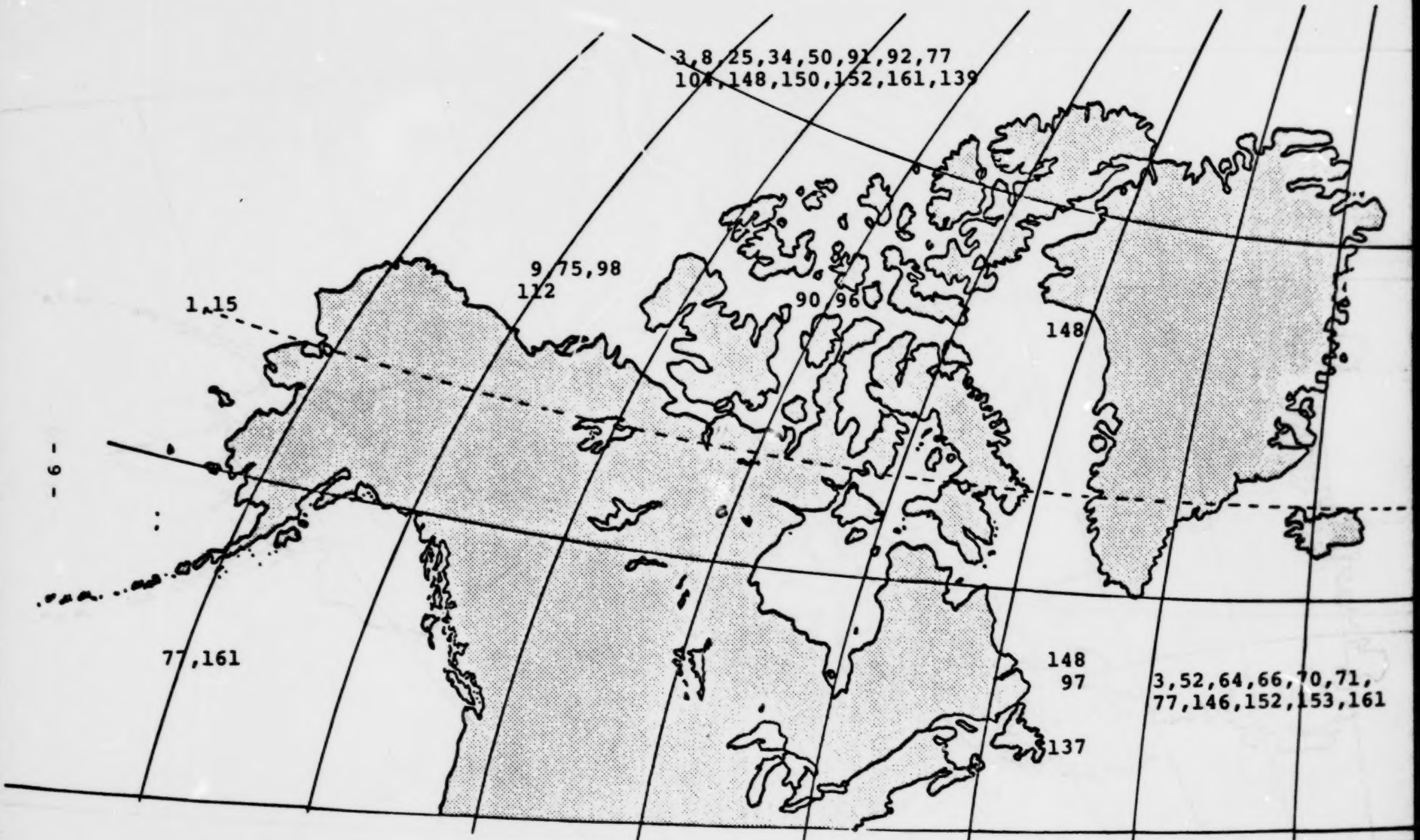
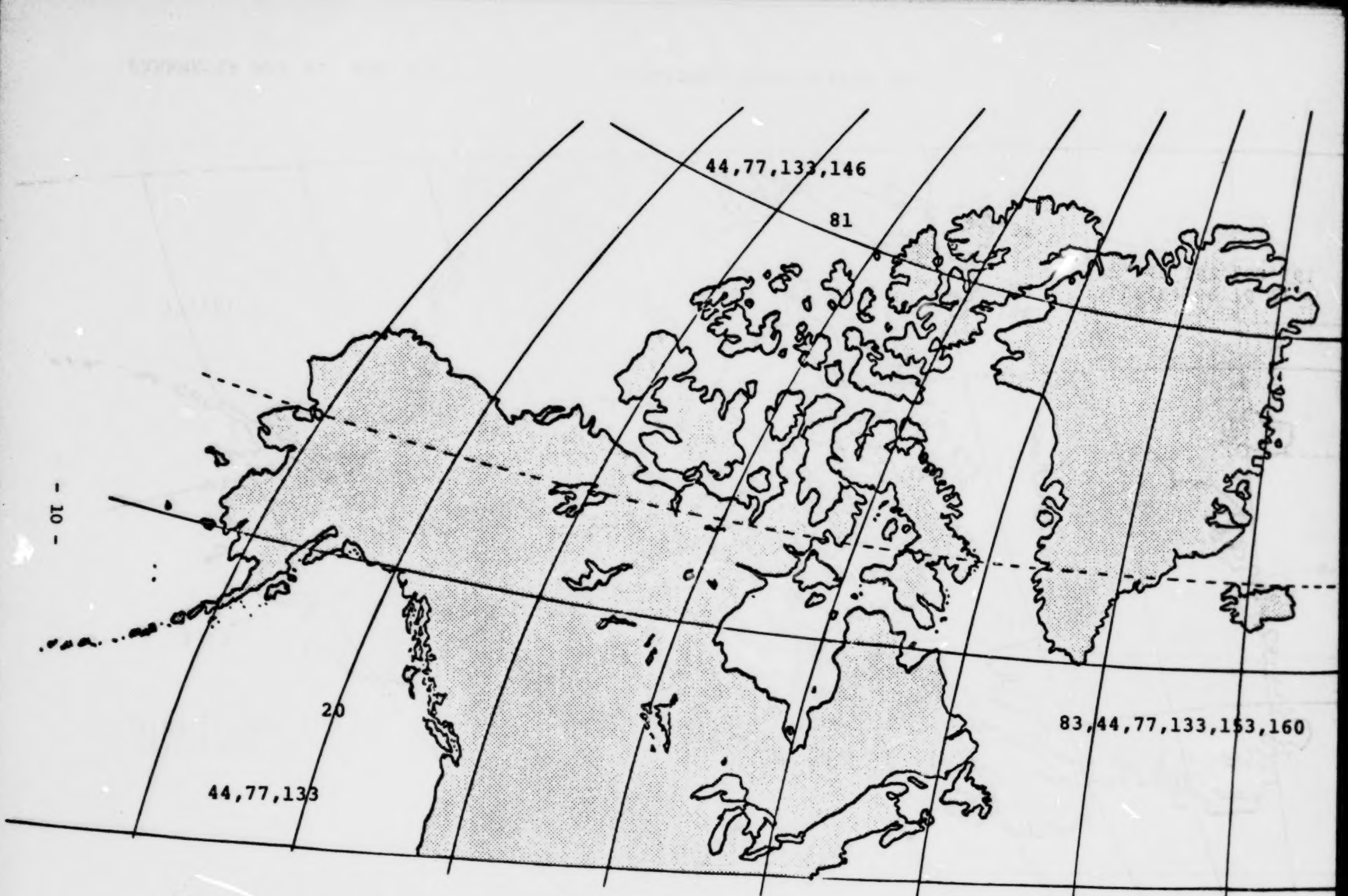
42

PARAMETER MAP 5: DENSITY

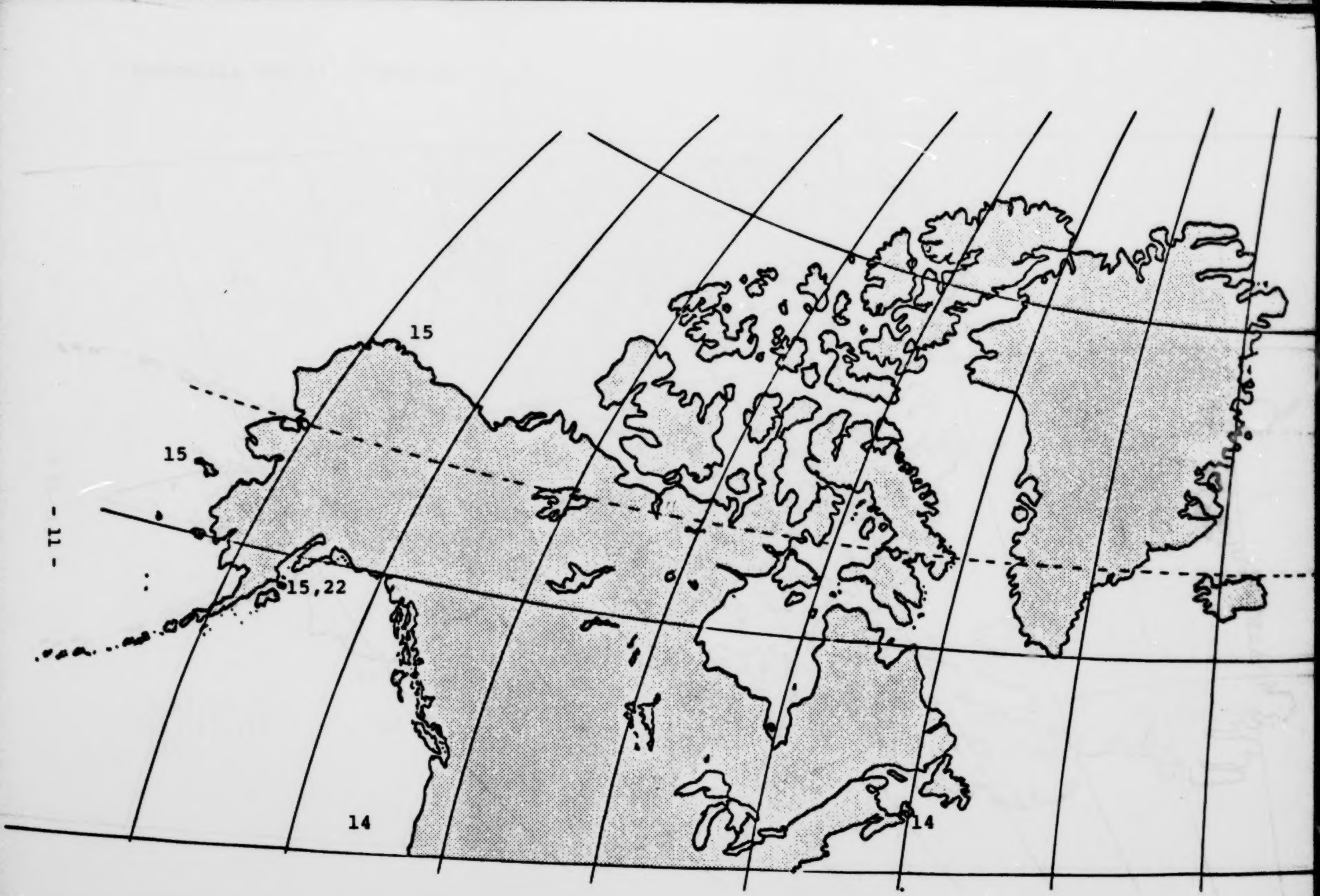

3,8,25,34,50,91,92,77
104,148,150,152,161,139
9,75,98
112
1,15
90,96
148
77,161
148
97
3,52,64,66,70,71,
77,146,152,153,161
137

PARAMETER MAP 6: SEA ICE

LOCATION UNSPECIFIED: 151

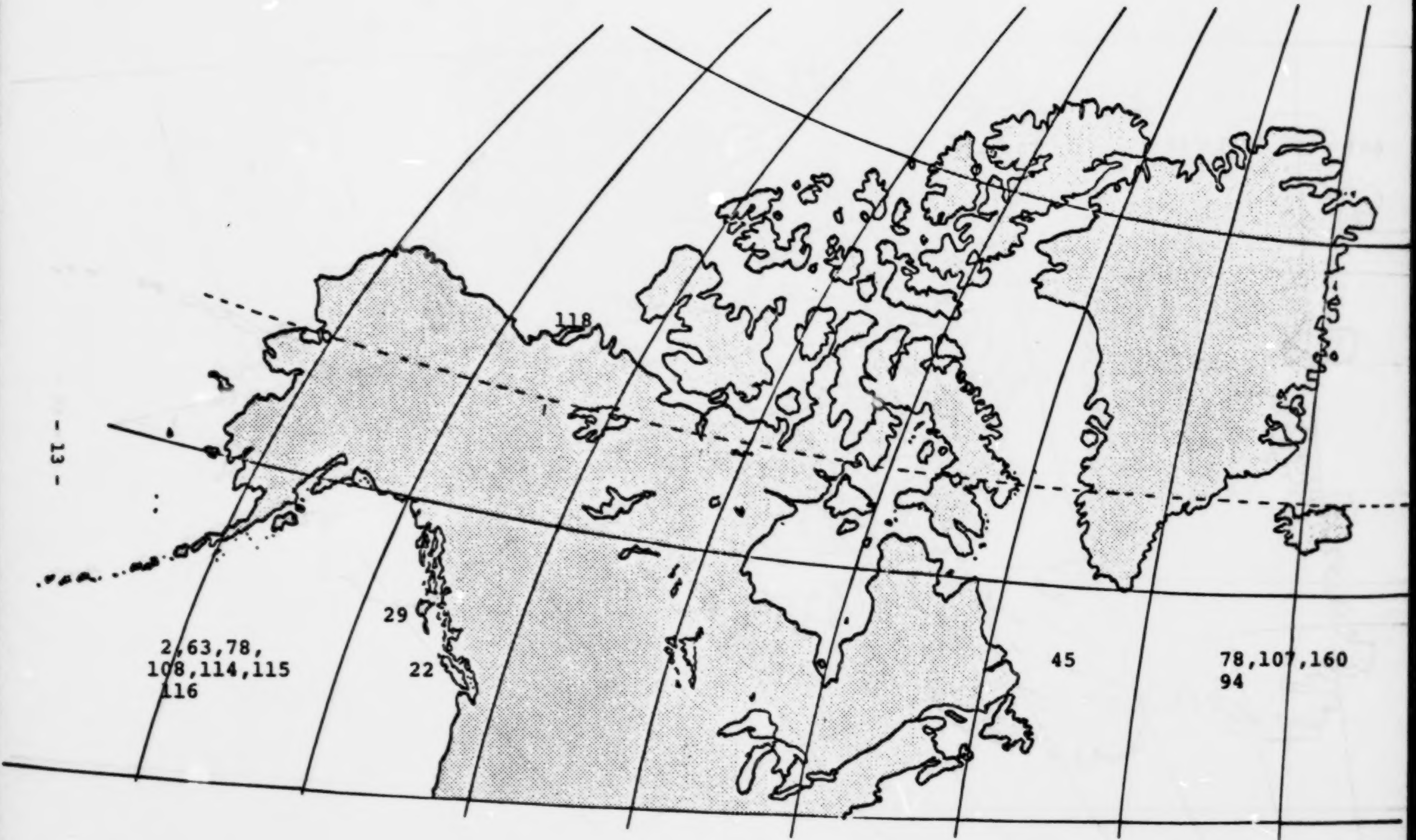

44,77,133,146
81
20
44,77,133
83,44,77,133,153,160

PARAMETER MAP 7: TIDES

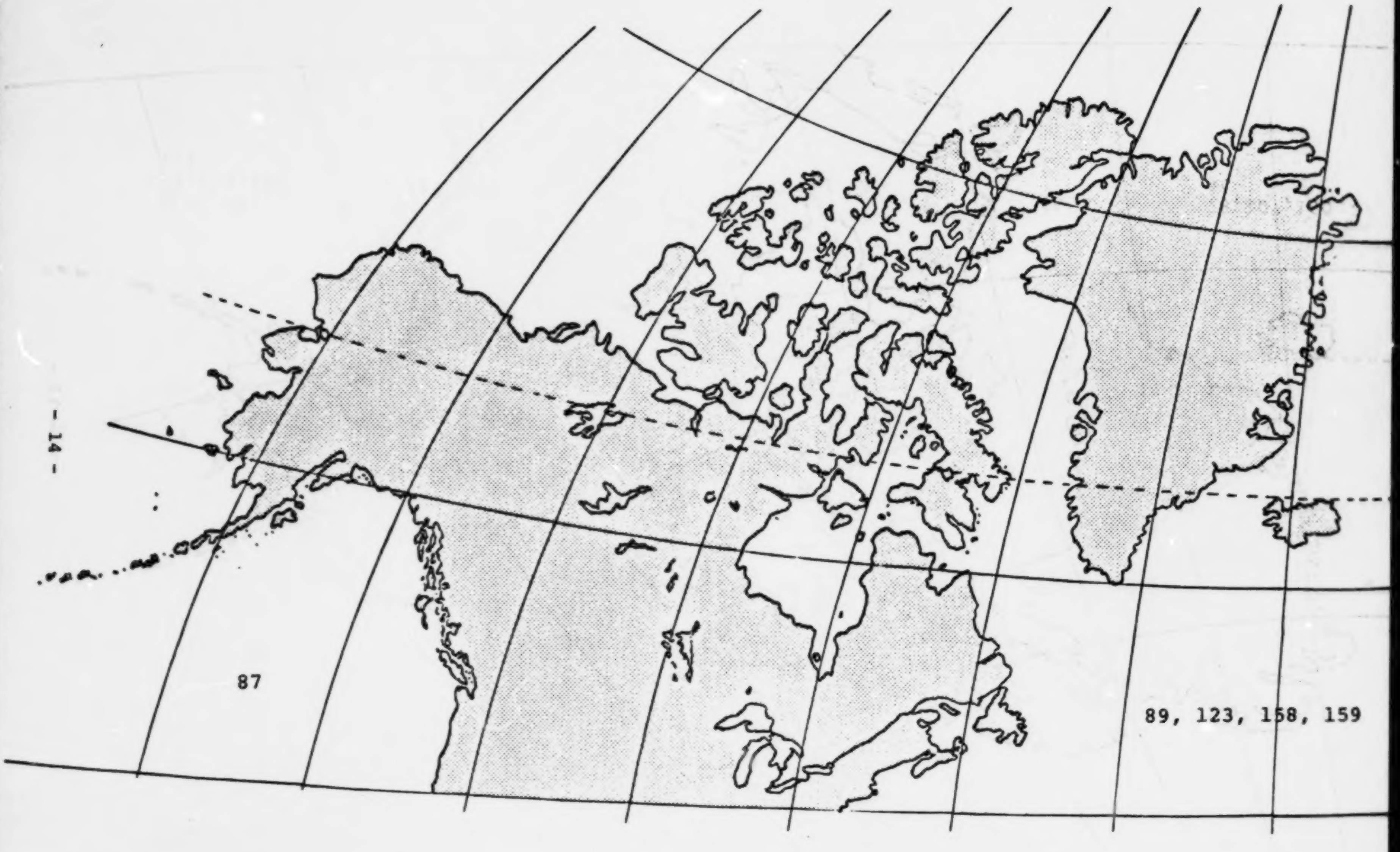

15
15
15,22
14
14

PARAMETER MAP 8: TSUNAMIS, STORM SURGIS

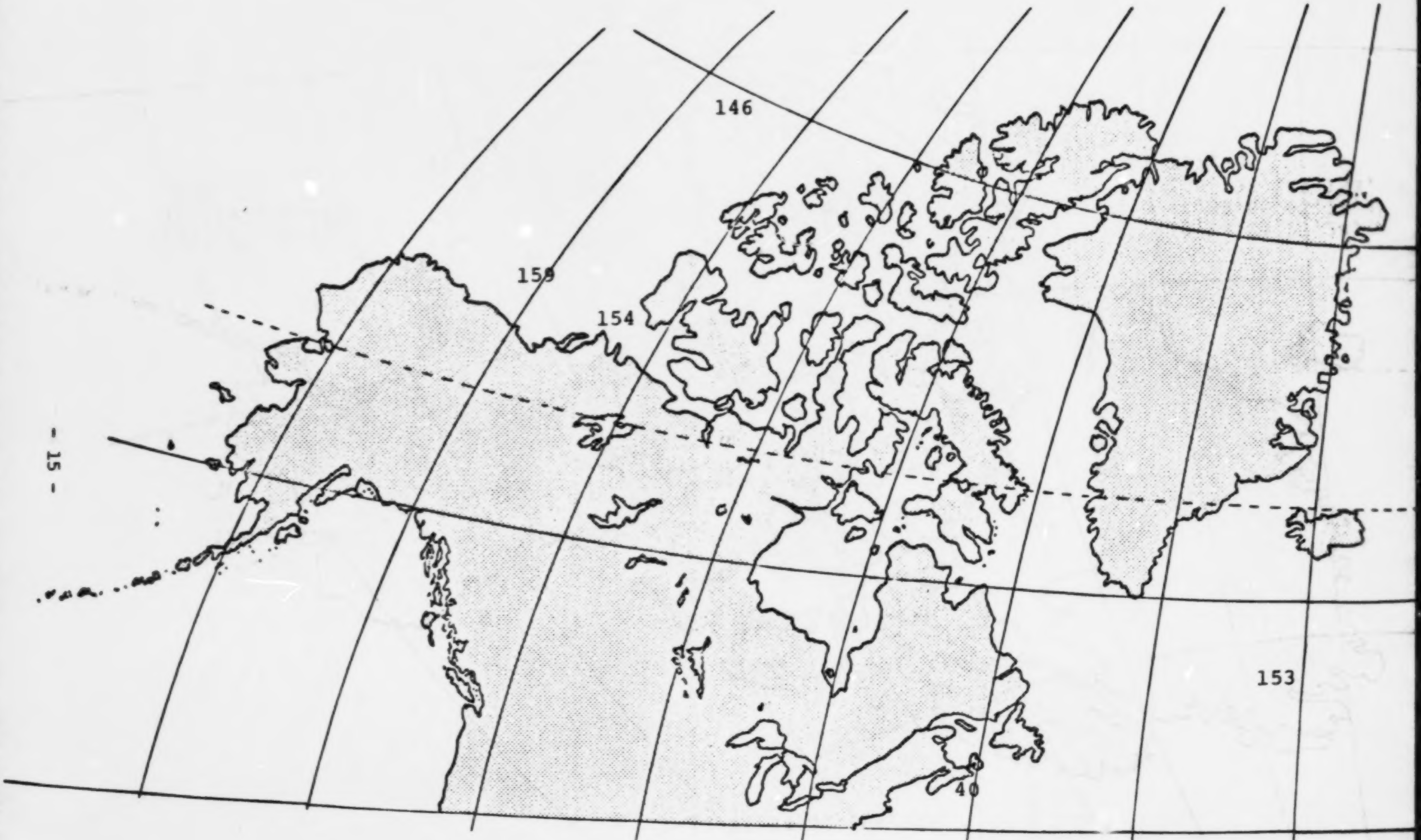
PARAMETER MAP 9: TURBIDITY


118
29
2,63,78,
108,114,115
116
22
45
78,107,160
94

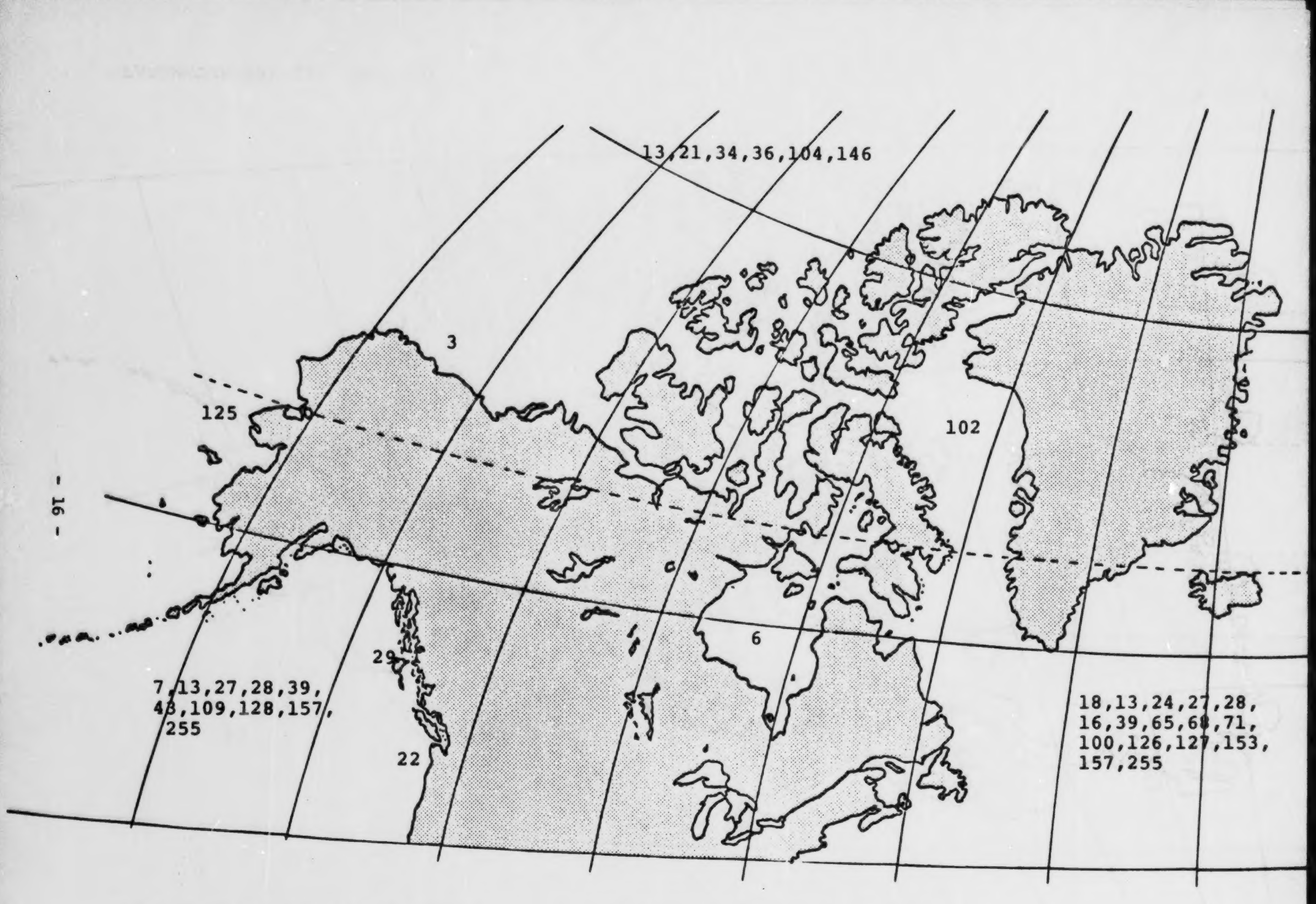
PARAMETER MAP 10: CHEMICAL NUTRIENTS


87
89, 123, 158, 159

PARAMETER MAP 11: PLANKTON


146
159
154
153
40

PARAMETER MAP 12: BIOLOGY


13,21,34,36,104,146
3
125
102
6
29
22
7,13,27,28,39,
43,109,128,157,
255
18,13,24,27,28,
16,39,65,68,71,
100,126,127,153,
157,255

PARAMETER MAP 13: UNDETERMINED LOCATION UNSPECIFIED: 5,88,140

PART 2

BIBLIOGRAPHY

PART 2

BIBLIOGRAPHY

Introduction

The Bibliography consists of entries in the following format.

Entry Number	Parameter Symbol Author. Title. Publication location/address publisher, date of publication. (number of pages, plates.) Cost and size (when available) Abstract when available. (Many of the abstracts given were taken from Keehn and Hacia (see 3.5 Bibliographies) and also from the data bases.)

Where entries are from journals, the following format is used:

Entry Number	Parameter Symbol Author. "Title". Journal, volume, number (month, year) pages. (number of pages, maps) Abstracts.

The parameters and symbols are listed again here for ease of reference.

1.	Waves	W
2.	Currents	Cu
3.	Temperature	Te
4.	Salinity	S
5.	Density	D
6.	Sea Ice	I
7.	Tides	T
8.	Tsunamis, storm surges	Ts
9.	Turbidity	Tu
10.	Chemical nutrients - silicates - phosphates - nitrates	Ch
11.	Plankton	P
12.	Biology	B
13.	Undetermined	G

Where publications have been translated from foreign languages into English the titles have been translated. Where publications have not been translated the original title has been left in the bibliography entries.

Entries that are not accompanied by an abstract have generally not been examined. Classification has been made on the basis of the entry's title, and in cases where this has not been possible, the entry has been classified as undetermined.

1. I
Ahlnas, K. et al. "Sea ice conditions in the Chukchi, Beaufort, East Siberian and northern Bering Seas during March 1973, 1974 and 1975 as seen from the NOAA 2, 3, and 4 satellites." International Conference on Port and Ocean Engineering Under Arctic Conditions, 3rd, Aug. 11-15, 1975, Vol. 1. Fairbanks: University of Alaska, 1976. (p. 83-104, 28 refs.)

2. Ch
Akademiia Nauk SSSR. Institut Okeanologii. Pacific Ocean. Vol. 3: Chemistry of the Pacific Ocean Moscow: "Nauka," 1966. 358 p. 141 figs., 62 tables. Bibliog. p. 342-358.

A review and results from processing numerous data obtained by the Soviet and foreign expeditions through 1961 on the chemistry of the water and bottom solutions of the Pacific Ocean. Data collected by the Soviet expeditions of the R/V Vitiaz', Ob' and other vessels predominate. The book is meant for researchers and practical workers in the fields of marine chemistry, hydrology, biology, geology and sea fisheries.

3. Te I
Alexander, R.C. and R.L. Mobley. Monthly average sea-surface temperatures and ice-pack limits on a 1 deg global grid. Rand report, Dec. 1974-R-1310-ARPA. Chicago: Rand Corporation, 1974 (30p., 10 refs.). Climatological monthly ocean-surface temperatures obtained from the National Center for Atmospheric Research and from Fleet Numerical Weather Central are merged and interpolated onto a 1 degree global grid. Monthly distributions of the main ice packs of the Arctic and Antarctic are digitized from Fleet Weather Facility ice charts and Navy atlases, and are incorporated into the global arrays.
Machine-analyzed maps of the 12 monthly distributions are presented, together with maps and tabulations of averages of these data on a global grid of 4 degrees latitute x 5 degrees longitude for the months of February and August.

4. Cu
Baird, W. Strait of Canso - ocean currents. Ottawa: Public Works Canada, 1976. 3v. 1976

5. **G W Cu**
Bales, Susan Lee and Foley, Edward. Atlas of naval operational environments; the natural marine environment. Bathesda, Md.: David W. Taylor Naval Ship Research and Development Centre. Ship Performance Dept., 1979. (342 p.)

6. **G**
Barber, F.G. Contribution to the oceanography of Hudson Bay. Manuscript report no.4. Ottawa: Canada. Department of Energy, Mines and Resources, 1967. (69 p.)

7. **G**
Barkley, R.A. Oceanographic atlas of the Pacific Ocean. Honolulu, Ha.: University Press, 1968. (177 p. incl. 56 figs.)

8. **I Cu Te**
Barnes, P. et al. "Some Coastal oceanographic observations." Environmental assessment of the Alaskan continental shelf. Vol.XVII: Hazards. Principal investigators' reports for the year ending March 1977 Boulder, Colorado: Environmental Research Laboratories, 1977. (p. 27-45, 12 refs.)

9. **W I**
Berry, M.O., P.M. Dutchak, M.E. Lalonde, J.A.W. McCulloch and I. Savdie. A study of weather, waves and icing in the Beaufort Sea. Beaufort Sea Technical Report No. 21, December 1975. (143 p.)

10. **Te S D**
Bohnecke, G. Atlas zu: temperatur, salzgehalt und dichte an der oberflaches des Atlantischen Ozeans Meteor expedition 1925-27. Berlin and Leipzig: Verlag Walter de Gruyter & Co., 1936. (7 pp plus 74 plates.)

11. **Cu**
Boisvert, W.E. Major Currents in the North and South Atlantic Ocean between 64° North and 60° South. Washington, D.C.: U.S. Naval Oceanographic Office, 1967. (104 p.)

This publication depicts the location, direction of flow speed and other characteristics of the major currents in the North and South Atlantic Oceans.

12. W Cu
Boris, L.I. Atlas of Variations in the Ocean-Atmosphere System in the North Atlantic. Issue 6: Seasonal variations in tidal phenomena and internal waves. Arlington, Va.: Translation Consultants Ltd., 1972. (133 p.)

13. G Cu
Bramwell, M., ed. The Mitchell Beazley Atlas of the Oceans. London: Mitchell Beazley, 1977. (208 p.) Also published as The Rand-McNally Atlas of the Oceans. New York, NY: Rand- McNally. (Approx. $50)

This excellent book is a comprehensive atlas of the oceans full of maps, diagrams, photographs and information charts. Four introductory chapters introduce the sciences of the ocean. The Ocean Realm gives a complete picture of the evolution of the ocean basins and photographs, maps, diagrams and charts explore the physics and chemistry of the seas, coastal erosion and sedimentation, and tides and currents. Man's Oceanic Quest follows man's relationship with the seas through his voyages of discovery and the emergence of the science of oceanography to present day technology. In Life in the Oceans photographs and artwork are used to describe and explain the evolution of marine life and the complicated interrelationships that exist between different species. The Great Resource discusses the distribution of living and non-living resources and their exploitation. The problems of pollution and overexploitation are discussed within the framework of the Law of the Sea conference. The Face of the Deep constitutes the main reference atlas, and illustrates the shapes of the ocean basins, their patterns of circulation, and their present and future resource potential. The Encyclopedia of Marine Life, which is illustrated with over 130 fine line drawings gives a reference catalogue of the plant and animal life in the oceans. The World Fishery Tables is a compilation of information covering the present level of exploitation. The tables show who is taking what from the oceans and in what quantities. As well as being a useful reference tool to the marine scientist and technologist, this book also acts as comprehensive introduction to all aspects of ocean sciences.

14. Ts
Brandsma M., D. Divoky, and L. Hwang. Tsunami atlas for the coasts of the United States. Pasadena, Calif.: Tetra Tech, Inc., 1979. (255p.)

15. **I Ts**

Brower, W.A., H.W. Searby and J.L. Wise. Climatic atlas of the outer continental-shelf waters and coastal regions of Alaska. Vol. 1: Gulf-of-Alaska. (439 p.) Vol. 2: Bering-Sea. (443 p.) Vol. 3: Chukchi - Beaufort-Sea. (409 p.) Storm-Surges, Superstructure icing, sea-ice, immersion hypothermia, wind-chill. Anchorage, AK: University of Alaska, Arctic Environmental Information and Data Centre, 1977.

16. **G**

Bruckner, Isaak. First Prussian marine atlas 1749. New marine atlas composed of a general chart and 12 special charts representing the globe from 82°N. Lat. to 60°S. Lat. Based on the newest observations arranged and edited by Isaak Bruckner. Approved by the Royal Academy of Sciences, Berlin, 1749. (London?, J. Rocque, 1749?) 13 fold. col. maps.

17. **Cu**

Bumpus, D.F. and Louise M. Lauzier. Surface circulation on the Continental Shelf off eastern North America Between Newfoundland and Florida. American Geographical Society, N.Y., Serial Atlas of the Marine Environment, Folio 7, 1965. Unpaged (4 p. of text, 8 double plates and 3 p. of tables). 20 refs.

The brief introduction discusses the data, the charts, and the surface circulation. The non-tidal drift at the surface of the Continental Shelf off eastern North America between Newfoundland and Florida, as inferred from the results of all available drift-bottle data between 1948 and 1962 inclusive, is presented in 12 charts, one for each month, exhibiting the annual cycle of the circulation. The charts show, on the basis of a 30' rectangular grid, where drift bottles were released, the percent recovery on the North American seaboard from each rectangle, and the velocity (direction and speed) of the drift through those rectangles from which the bottles originated. Four summary charts portray the surface circulation pattern on a seasonal basis.

18. **G**

Canada. Atlantic Oceanographic Group. Oceanographic Atlas. Ottawa: Fisheries Research Board, 1961

19. **W**

Canada. National Research Council and Ministry of Transport. Wave Climate Study: Great Lakes and the Gulf of St. Lawrence. Ottawa: NRC. Mechanical Engineering Report MH-107A, NRC No. 11966, March 1971.

20. **Cu T**

Canadian Hydrographic Service Tidal and current survey Pacific Coast (Canada). Ottawa: Fisheries & Oceans, 1952.

21. **G**

Central Intelligence Agency. Polar regions - atlas. Washington, D.C.: U.S. Government Printing Office, 1978, reprint 1979. (67 p.)

22. **G Ch**

Collias, Eugene E. Atlas of physical and chemical properties of Puget Sound and its approaches. Seattle, Wash.: University of Washington Press, 1974.

23. **Ts**

Cox, Doak C. and George Pararas-Carayannis. Catalog of Tsunamis in Alaska. Revised 1976. Washington, D.C.: Oceanic and Atmospheric Administration, Environmental Data Service, 1976.

24. **G**

Defant, A. Die relative topographie einzelner druckflacen im Atlantischen Ozean. DAE Meteor 1925 - 1927, Band VI/2. Berlin and Leipzig: Verlag Walter de Gruyter & Co., 1941. (183-190 pp plus 9 plates.)

25. **I**

Denmark. Meteorologisk Institut. State of ice in the Arctic Seas. 1900-1939; 1946-1950. Denmark. Meteorologisk Institut, Nautisk-Meteorologisk Arbog, Tillaeg (Appendix), 1900-1950. Charts. In English

Reports on the state of the ice in the Arctic seas were published by the Danish Meteorological Institute for each of the years 1901(sic)-1939 and 1946-1949. For the intervening years, 1940-1945, the Institute is endeavoring to collect data which will make possible a later publication of reports from these years. North Atlantic sea surface temperature charts were included through the 1939(?) issue. Annual reports (currently prepared by Helge Thomsen, Chief of the Nautical Section) consist of discussion of the annual seasonal ice characteristics and of monthly details by regions plus color charts showing ice types and extent for that particular year as contrasted with average conditions for 1898-1922. When publication resumed in 1946 data from the Soviet and part of the American Arctic were no longer available.

26. **Te**

Denmark. Meteorologisk Institut. *Monthly surface temperatures of the northern Atlantic: 50-80 N, 0-60 W, 1961-1970*. Denmark: Meteorologisk Institut. Publikationer. Arboger, 1975. (28p., In Danish and English.)

27. **G**

Die Weltmeere-Taschenatlas mit den wichtigsten Tatsachen aus Meteorologie und Nautik (3 neubearb. und erw. Ausg. Gotha, Haack) 1962. (172 p.)

It has c. 30 maps of oceans and seas plus plans of ports. It shows directions of currents and winds and fathom lines.

28. **G**

Dietrich, G. and J. Ulrich. *Atlas zur oceanographie.* [S.l.] Bibliographisches *Institut Mannheim, 1968*. (78 p. 72 fig.)

29. **Te Ch Cu G**

Dodimead, A.G. *A general Review of the Oceanography of Queen Charlotte Sound, Hecate Strait and Dixon Entrance Areas*. Canadian Manuscript Reports of Fisheries and Aquatic Sciences, No. 1574, Ottawa: Resource Services Branch, Department of Fisheries and Oceans.

A summary of most of the available data on both a time series and cross sectional basis covering the period 1934-1971. 241 pages, including maps.

30. **Te**

Eber, L.E., J.F.T. Saur and O.E. Sette. *Monthly mean charts of sea surface temperature: North Pacific Ocean 1949-1962.* Washington, D.C.: U.S. Dept. of Interior, Bureau of Commercial Fisheries, Circular 258, 1968. (6 p. plus 168 pl.)

31. **Te S D**

Emery, William. (Temperature, salinity, density: Atlantic and Pacific Ocean). Vancouver, B.C.: University of British Columbia. (Forthcoming publication; complete information not available April 28, 1981.)

32. **Te**

Everson, C.E. and D.T. Brissett. Climatic atlas of North America mean sea and lake surface temperatures. 4th Weather Wing technical paper 70-3, 1970. (27p.)

The purpose of this technical paper is to provide a reference on mean sea and lake surface temperature for North America for use in operational planning by organizations in North American Air Defence Command and Aerospace Defense Command. Monthly charts for the Pacific (to 170 degrees east) the Atlantic (to 30 degrees west) and the Great Lakes are included. This paper is strictly a climatic atlas.

33. **Cu**

Felber, Otto-Heinrich. "Surface currents of the North Atlantic Ocean between 15° and 50° N. Lat." Hamburg: Aus dem Archiv der Deutschen Seewarte, 53(1), 1934. 18 p. Table, 6 plates, 46 refs.

34. **G I Te Cu**

Fenco Consultants Ltd. and F.F. Slaney and Co. Ltd. An Arctic Atlas: Background information for developing marine oilspill countermeasures. Ottawa: Fisheries and Environment Canada. Environment Emergency Br. Environmental Protection Service, 1978.

This project has been undertaken as part of the Arctic Marine Oilspill Program (AMOP) with the objective of providing a baseline document, prepared from existing information, to assist in the development of an oilspill countermeasures capability for the marine areas of the Canadian arctic and subarctic. An atlas format has been selected with information mapped at two scales. For data of a general nature, keymaps are presented at a scale of 1 to 15,282,000. For more detailed information, basemaps are presented at a scale of 1 to 2, 817,000. A series of 22 basemaps spans the area of interest covered by a single keymap. Five principal categories of information relevant to oilspill countermeasures have been treated, these being: Geology and Petroleum Development, Meteorology and Oceanography, Ice, Biology, and Social. Generally a mapped format has been employed, with explanatory graphs and tables inserted where necessary. Graphs, maps tabs, refs.

35. **Te Cu**
Filiushkin, B.N. "Thermal characteristics of the upper water layer in the North Pacific Ocean." Akademiia nauk SSSR. Mezhduvedomstvennyi geofizicheskii komitet. 10 razdel programmy MGG. Okeanologiia, No. 19 (1968) p. 22-69.

Introductory notes by Leon Teisserence de Bort precede Ocean charts showing pressure, wind, storms, currents, temperature and magnetic declination.

36. **G**
Foster, Theodore D. "Polar oceans: similarities and differences in their physical oceanography." Polar research - to the present, and the future. Edited by Mary Alice McWhinnie. (Boulder, Colorado: Westview Press, c1978) p. 117-140. (maps, graphs.) References.

The physical oceanography of the polar oceans is compared, and it is found that the Arctic Ocean proper is quite different from the Southern Ocean. The primary causes of this difference are the relative isolation of the Arctic Ocean, which results in nearly permanent ice cover, and the large amount of fresh water runoff from the northern rivers, which causes the upper waters of the Arctic to be very stable. The Greenland Sea bears a closer resemblance to the Southern Ocean and, in particular, to the Weddell Sea in that both have cyclonic circulation, a three-layer structure, and are major source areas for bottom water formation.

37. **Te Cu**
France. Bureau Central Meteorologique. Atlas of marine meteorology published on the occasion of the International Maritime Exposition at Le Havre. Paris: Gauthier-Villars, 1887. 35 p. 7 figures, tables, 35 plates.

Introductory notes by Leon Teisserence de Bort precede ocean charts showing pressure, wind, storms, currents, temperature and magnetic declination.

38. **Cu**
France. Bureau Central Meteorologique. Atlas of winds and currents in the Atlantic Ocean. Paris, 1870.

39. **Tu G**
Frederick, Margaret Anne. An atlas of secchi disk transparency measurements and forel-ule color codes for the oceans of the world. Monterey, Calif.: Naval Postgraduate School, 1970.

40. **B**
Fritz, Raymond L. Autumn distribution of groundfish species in the Gulf of Maine and adjacent water, 1955-1961. Serial atlases of the marine environment, Folio 10. New York: American Geographical Society, 1965. Unpaged. Figures, plates, template (laid in - back pocket), references, oversize

"This folio summarizes and illustrates the autumn distribution of 20 common groundfish species in the Gulf of Maine, on Georges Bank, and in the adjacent waters, and describes these distributions in relation to depth and bottom water temperatures." Collection techniques and reduction of data are described briefly and the results are discussed.

41. **Te S**
Fuglister, F.C. Atlantic Ocean atlas of temperature and salinity profiles and data from the International Geophysical Year of 1957- 1958. Woods Hole, Mass.: Woods Hole Oceanographic Institution, 1960. (209 p. incl. 42 plates in color.)

Ocean temperature - salinity.

42. **D**
Germany. Kreigsmarine Obercommando East Coast United States (Northern Part) - Tidal Streams, Depth, Bottom Densities. Berlin, 1943.

43. **G**
Giovando, L.F. and Margaret K. Robinson. Characteristics of the surface layer in the Northeast Pacific Ocean. La Jolla, Calif.: Scripps Institution of Oceanography, 1969.

44. **T W**
Godin, G. Cotidal charts for Canada. Manuscript report series, No. 55. Ottawa: Dept. of Fisheries and Oceans, Marine, Science and Information Directorate, 1980. (Includes references.)

45. **Te Ch S**
Grant, A.B. Atlas of oceanographic sections: temperature salinity - dissolved oxygen - silica 1965-67. [Davis Strait - Labrador Basin - Denmark Strait - Newfoundland Basin 1965 - 1967.] Dartmouth, N.S.: Atlantic Oceanographic Laboratory, Bedford Institute, 1968. (85 p. incl. 88 p. of figures)

46. **Te S**
Great Britain. Hydrographic Dept. Salinity and quarterly centigrade temperature charts of the surface waters of the Atlantic, Pacific, and Indian Oceans with nomograms for determining the speed of travel of sound in surface sea-water and graphs showing how the freezing point, the maximum density point, and the electrical conductivity of sea-water vary with salinity and temperature. May 29, 1942. 6 charts (dol.), 2 monograms (fold.), graphs.

47. **Cu**
Great Britain. Hydrographic Office Wind and current charts for the Pacific, Atlantic and Indian oceans. 1872. Unpaged. 5 charts.

48. **Te**
Great Britain. Meteorological Office. Climatological and sea-surface current charts of the North Atlantic Ocean, January-December, issued 1957-1958. Meteorological Office No. 615. (3 sh. each.)

Content of the charts based upon observations received from British selected ships between 1855 and 1939. The charts represent one of a series based on observations received from selected British ships between 1855 and 1939, the series is to be prepared for the North Atlantic, South Atlantic, Indian, North Pacific and South Pacific Oceans. The climatic and sea surface current charts show the currents during the quarter beginning with the respective month, the wind roses for the months, and approximate mean (1920-1939) limit for pack ice. Maps consisting of isopleths for scarce observations are included. Normal steamer tracks are also shown on the maps.

49. **Te Cu**
Great Britain. Meteorological Office. Currents and surface temperature of the North Atlantic Ocean from the Equator to latitude 40°N. London, 1872. Official No. 12. (47 p.)

Monthly and annual charts of the North Atlantic Ocean, 2-1/2-degree squares, arrows show the direction of the surface currents, mean rate of current in miles per day, and number of observations. The mean temperature of the sea surface is shown in the square, also the number of observations on which the mean is based.

50. **Te Cu**
Great Britain. Meteorological Office. Monthly Current Charts for the Atlantic Ocean. London: Hydrographic Office, 1897 ([12] p.)

51. **I**
Great Britain. Meteorological Office. Monthly ice charts: Arctic Seas, Hudson Bay to Kara Sea. London: Marine Branch, Meteorological Office, Air Ministry, circa 1942. ([26] p.)

52. **I**
Great Britain. Meaeorological Office. Monthly ice charts: Western North Atlantic: Lat 37°N to 53°N, Long. 37°W to 72°W. London. Marine Branch of the Meteorological Office, Air Ministry, 1944. (29 p.)

53. **Cu**
Great Britain. Meteorological Office. Meteorological charts for the world. London: H.M. Stationery Office, December 31, 1928. Chart number 2917-18, 2930-34. All charts.

Quarterly charts of 60 degrees S - 70 degrees N show mean directions and velocities of stream and drift currents, as well as winds, isotherms and isobars for the Pacific, Atlantic and Indian Oceans. Charts were compiled from Great Britain Meteorological Office and Hydrographic Office and U.S. Hydrographic Office charts.

54. **Te**
Great Britain. Meteorological Office. Monthly meteorological charts of the Atlantic Ocean. London, 1941. Cover title, 1 v. (unpaged) charts 52 x 62 cm.

Monthly. Wind roses; frequency of winds; predominant direction, constancy and force of surface winds; air temperature; mean cloudiness; sea swells; sea temperature; difference between mean air and mean sea temperature; precipitation, snow alone, fog, mist haze and lightning.

55. **Te**

Great Britain. Meteorological Office Monthly meteorological charts of the Atlantic Ocean. London, H.M. Stationary Office, 1948. Meteorological Office no. 483. 122 p. Charts.

Four large atlases which deal comprehensively with the climatology of the oceans month by month. Prepared during war primarily for operational purposes. All data shown on charts of the oceans by isopleths except wind and swell data which, being vector quantities, do not lend themselves to such representation. Observations generally grouped in 5° squares. Monthly mean, maximum and minimum sea and air temperatures and range between maximum and mean plotted as well as isotherms of the mean monthly differences between sea and air temperatures. Cloud data represented by four charts for each month. Other weather factors represented include fog, mist, haze, lightning, and precipitation. Wind roses constructed for each 5° square. "Swell" roses showing direction and intensity, typical monthly cyclonic storm tracks and correction and conversion tables also included.

56. **Te W**

Great Britain. Meteorological Office Monthly meteorological charts of the Eastern Pacific Ocean. Meteorological Office No. 518. Great Britain, Meteorological Office, Marine Branch, 1950. 122 p. 320 charts. (Formerly M.O.M. 446).

Charts of area 60°N to 60°S, 160°W to coast of America. Includes for each month charts of resultant winds or vector means, barometric pressure and resultant winds, frequency of winds of gale force (Beaufort 7 or higher), predominant direction, constancy and force of surface winds, wind roses for each 5° square. Frequency, amount and direction of swell (swell roses). Percentage frequency of fog, fog mist and haze, snow, precipitation, lightning. Mean cloud amount and percentage frequency of clear, fair and cloudy or overcast skies. Mean maximum, minimum and range of air and sea temperature and difference air-sea, typical tracks of tropical cyclones. Introduction includes tables of diurnal variation of barometric pressure in 10° zones, 20°N-20°S.

57. **Te**
Great Britain. Meteorological Office, Monthly meteorological charts. Mean wind, weather, pressure, sea and air temperature and humidity. Western North Atlantic 10° to 70°N., 40° to 100°W. Meteorological Office No. 394. (London, 1942) Unpaged. Figs., charts.

58. **Te**
Great Britain. Meteorological Office. Monthly sea surface temperatures of North Atlantic Ocean. London, 1949. 12 p. (chiefly maps), 49 x 31 cm. (M.O. 527)

Monthly, maps, North Atlantic Ocean mean isotherms sea surface temperatures (degress F).

59. **Cu**
Great Britain. Meteorological Office. Quarterly surface current charts of the eastern North Pacific Ocean eastward of longitude 160°W. Prepared in the Marine Div., London, 1959. 14 p. 43 cm X 55 cm. 1 p. of text. Entirely charts. Price: 15 sh. (M.O.655).

...A large format, handsomely lithographed atlas consisting of 12 seasonal current charts for the northeast Pacific from 0° to 60°N and from 80° to 160°W. The charts are compiled from data observed by British merchant and naval ships from 1855-1952 and computed by 2° lat. and 4° long. rectangles. However, the representation of data on the wind-rose, predominant current and vector mean current charts is by rectangles of varying size, depending on the nature of the currents. The 3 basic chart types (4 charts for each type) are: 1) surface current roses to 16 directions and 5 speed rates; 2) predominent current directions indicated and with rather extensive remarks on currents shown and 3) surface current vector mean charts for the 3 month period showing the general oceanic circulation over a long period. Notes regarding the preparation and use of these charts, effects of winds on currents at any given time, etc., are included.

60. **Cu**
Great Britain. Meteorological Office. Quarterly current charts - Pacific Ocean. London: Hydrographic Office, 1897. (5 leaves).

61. **Cu**
Great Britain, Meteorological Office. Quarterly surface current charts of the Atlantic Ocean. London: Meteorclogical Committee, 1945. (26 p.)

62. **Cu**
Great Britain. Meteorological Office. Quarterly surface current charts of the Eastern North Pacific Ocean eastward of longitude 160°W. London: H.M.S.O., 1945. (14 p.)

63. **Ch**
Gusarova, A.N., V.A. Konnov and V.V. Sapazhnikov. Basic distribution patterns of biogenic elements in the Pacific Ocean. Akademiia nauk. Khimicheskie protessy v moriakh i okeanakh (Chemical processes in seas and oceans). Moscow: Nauka, 1966. (119-129, In Russian. 8 refs.,)

64. **I**
Hamburg. Deutsche Seewarte. Atlas of ice conditions in the North Atlantic. Oberkommando der Kriegsmarine, Feb. 1944. (iv. Almost entirely charts.)

65. **G**
Hamburg. Deutsche Seewarte. Monthly charts for 50° to 70° N. Lat. in the North Atlantic Ocean. Oberkommando der Kriegsmarine, 1940. (Unpaged. Almost entirely charts.)

66. **I**
Hamburg. Deutsche Seewarte. Monthly charts of ice conditions in the North Atlantic Ocean. Oberkommando der Kriegsmarine, Nov. 1940. (10 p. text. Almost entirely charts.)

67. **Te Cu**
Hamburg. Deutsche Seewarte. Atlantischer Ozean. Ein atlas die physikalischen verhaltnisse unde die Verkehrsstrassen darstelland. Hamburg, 1882, 1902. (11 P. 9 p., 36, 39 charts. 17-1/2 x 13 in.)

Monthly charts of the Atlantic Ocean indicating direction of flow of sea surface currents in northern winter, areas of drift ice, sea swell, specific gravity, salinity, mean sea temperature, distribution of seasonal rainfall, mean cloudiness and duration of fog. It includes four synoptic maps of the North Atlantic and 21 small charts showing weather conditions.

68 . G
Hamburg. Deutsche Seewarte. Monthly charts for the North Atlantic, revised by the Deutsche Seewarte. 1939-1940. Hamburg: Oberkommando der Kriegsmarine, 1940. (48 p.) Also: Monthly charts for the South Atlantic. Hamburg, 1944. (52 p.)

Monthly charts for the Atlantic, 60 degrees N - 6 degrees S and 10 degrees N - 5 degress S, compiled by the Deutsche Seewarte from British, Dutch and German ship reports with variable but substantial periods of record for different elements. Recorded on charts are wind roses for 5-degree squares, limits of drifting ice, limits of sand and dust, fog frequencies, ocean currents, sea surface temperature, salinity and density, air pressure and prevailing wind direction, wind speed, storm frequencies (Beaufort force ≥ 8), air temperature, precipitation and frozen precipitation frequencies. Selected synoptic situations shown.

69. Te Cu D
Hamburg. Deutsche Seewarte. Pacific Ocean. An atlas of 31 charts, showing the physical characteristics and the trade routes...supplement to Sailing handbook for the Pacific Ocean. Hamburg, L. Friederichsen & Co., 1896. (14 p. + 31 charts.)

The 31 large colored charts cover ocean depth, temperature distribution, currents, density; air temperature pressure and movement; synoptic weather charts and charts of magnetic variations.

70. I
Hamburg. Deutsches Hydrographisches Institut. Atlas of ice conditions in the North Atlantic Ocean and general charts of the ice conditions of the North and South Polar regions. Hamburg, 1950. (24 p. 34 col. charts. bibliog. p. 24. Hamburg. Deutsches Hydrographisches Institut No. 2335.)

Monthly charts show mean (1919-1943) ice characteristics and extent in the North Atlantic, Arctic and Antarctic (1929-1939) oceans. Text devoted to a discussion of the geographical distribution of ice and to the definition of the various types of ice.

71. **G I Te**
Hamburg. Deutsches Hydrographisches Institut Handbook of the Atlantic Oceans, Vol. 1: North Atlantic Ocean. Completely rev. 4th ed. of Dampferhandbuch fur den Atlantischen Ozean (1928). Hamburg: Pub. by the Institut, 1952. (290 p. Numerous diagrs. and charts (fold.) Its No. 2057.)

The first edition of this handbook for North Atlantic sea navigation was published in 1905 and the second in 1913. The 3rd ed. (1928) has been completely revised to include material on radar storm location (with illustrations from radar scope photos) and material more pertinent to motor ships than to the older steam or sailing vessels which were in vogue when the earlier editions were prepared. Of course charts of frequencies of fog, ice, storms, winds and hurricanes have appeared in most "sailing directions" since Maury but air-sea temperature differences, frontal passages and their effects on navigation, refractive index, navigation in fog (radar and loran) are added features.

72. **Te**
Hamburg. Deutsches Hydrographisches Institut. Monthly charts of the North Atlantic Ocean. (1967) Oversize.

For each month: most important weather situations, wind speeds and direction, and water temperature, currents, precipitation, pressure.

73. **W**
Harvey, L.A. et al. A statistical study of wave conditions of four open sea localities in the North Pacific Ocean. Technical note 1493. Washington, D.C.: National Advisory Committee Aeronautical, 1949.

74. **W**
Hogben, N. and F. E. Lumb. Ocean Wave Statistics. National Physical Laboratory of Great Britain, 1967.

An atlas of wave and swell heights, period and direction, based on over one million sets of observations by some 500 vessels, including British ocean weather ships. 12 in. x 17 inches.

75. **I**

Hunt, W.R. and C.M. Naske. "Baseline study of historic ice conditions in the Beaufort Sea, Chukchi Sea, and Bering Strait". Environmental assessment of the Alaskan continental shelf. Vol. 1: Physical science studies. Principal investigators' final project reports, p.122-534. Boulder, Colorado: Outer Continental Shelf Environmental Assessment Program, March 1979.

76. **Te S**

Huyer, Adriana and Andrew Verney. Temperatue, salinity and sitma-t at Station 27 (47° 33' N, 52° 35' W), 1950-1959. Marine Environmental Data Service, Technical report, no. 3. Ottawa: Dept. of the Environment.

Temperature, salinity and sigma-t observations at Station 27 for the period 1950-1959 are presented graphically, relative to the time-depth plane, as well as individual functions of time at each depth. Their ten-year seasonal means are similarly displayed, and these could serve as base period values at Station 27.

77. **Te S D I Cu T W**

Isakov, I.S., V.V. Sjulekin and L.A. Demin, ed. Marine atlas. Vol. 2: Physic-geographical part. Morskoi Atlas. Vol 2: Fiziko-geografissheskii). Moscow: Glavnyi Shtab Voenno - Morskikh Sil, 1953. (Unpaged. 52 cm. 76 charts (colored), some double pages.) At head of cover-title: Ministerstvo Oborony SSSR (Soviet Ministry of the Navy).

Vol. 1 of the monumental 3-volume Marine Atlas is devoted entirely to geographic and bathymetric charts of all the world's oceans, seas, bays and harbours. Vol. II contains most of the physical, geodetic, astronomical and evironmental charts (expeditions, meteorology, climate, oceanography, ice); Vol. III is devoted to the political aspects of world geography; wars from the earliest time to the 20th century, etc. In Vol. II of this elegantly reproduced marine atlas there are several hundered separate but well-integrated climatic or oceanographic, not to mention geomagnetic, charts, maps, diagrams, etc., covering the physical conditions over the major and minor oceans and seas. The 300 or more climatic charts are on scales ranging from 1:50 million to 1:300 million. Subjects include: thermal balance (solar radiation, evaporative heat loss, turbulent thermal exchange between earth and atmosphere, heat gained or lost at sea surface by ocean currents and by evaporation); mean January and July air temperature; mean January and July latitudinal temperature anomaly; difference of air and water temperature (February, May, August and November); pressure and wind in January and July; seasonal mass distribution; movement and frequency of cyclones and anticyclones, January and July; surface and 500 mb pressures; climatic zones of the earth; total precipitation over earth; annual temperature and precipitation regimes, monthly air temperature, wind, cloud and fog, January - December, and seasonal precipitation; pressure, wind and storm frequencies by months; winds aloft each season; annual upper air temperature regime for Reykjavik, St. Thomas, San Diego, Pensacola, Pearl Harbour, Coco Solo, Djakarta, Gibraltar and Aldergrove. Oceanographic charts include charts of oceanographic expeditions from 1800 to 1950, of temperature, salinity and density, cross sections of each separate ocean and strait, polar ice, currents, tides, waves.

78. **Ch**
Johnston, Robert. The trace elements. Serial atlas of the marine environment. Folio 8. New York: American Geographical Society, 1965. (6 p., 2 charts, 44 refs.)

79. **Te S**
Keeley, J.R. Mean conditions of potential temperature and salinity along the Flemish Cap Section. Marine Environmental Data Service, Technical report, no. 9. Ottawa: Dept. of Fisheries and Oceans.

This report contains analyses of all observations of potential temperature and salinity along the Flemish Cap section held by the Marine Environmental Data Service. Computations of mean conditions were made using some of the ideas of optimum interpolation. It was found that the variability in the observations were larger between the same months in different years than within the month. This resulted in a simplification of the procedure for each month. A volumetric analysis of the potential temperature and salinity by month has also been performed and is presented.

80. **Te S**
Keeley, J.R. Temperature, salinity and sigma-t at Station 27 (47°33'N, 52° 35'W) an analysis of historical data. Marine Environmental Data Service, Technical report, no. 8. Ottawa: Dept. of Fisheries and Ocean, 1981.

This report is an extension of a report of 10 years of data from Station 27. Here, 32 years of temperature and salinity data have been treated. Results show contours of temperature, salinity and ^{O}1 over depth and time for each year, and for the 32 year averages. The data set was filtered to show the interannual variation in the three parameters over the record length. Finally, anomalies of the three parameters were calculated and displayed at selected depths.

81. T
Kowalik, Z. and N. Untersteiner. "A study of the M2 tide in the Arctic Ocean." Deutche Hydrographische Zeitschrift, v. 315 no. 6. (1978) p. 216-229, (illus. refs. Some in Ger.; Russ.)

Numerical schemes for 1st and 2nd order approximations on a 75-km grid are used to calculate amplitude3s and phases of the M2 tide in the Arctic Basin. Assuming that all tidal energy enters from the Atlantic Ocean across a line approximately Tromsoe-Jan Mayen-Scoresby Sound, the computations yield a main amphidromic point off Prince Patrick island at 81 deg30* N, 133 deg W, confirming earlier assumptions. Several additional amphidromies apparently exist on the Eurasian Shelf. Frictional energy dissipation is assumed to be proportional to the square of horizontal velocity and the inverse square of water depth. Except for the region of Novaya Zemlya, observed and computed amplitudes and phases at points on the Eurasian and North American coast are in good agreement with observations. The results are shown on cotidal and corange maps, and a distribution of current ellipses. A distribution of the maximum horizontal velocity divergence due to the M2 tide is also shown. Significant divergences, which are likely to affect the compactness of sea ice, are limited to the Greenland Sea, and the shallow waters of the Eurasian Shelf. From the computed velocity field, the amount of energy dissipated by bottom friction in the Arctic Basin averaged over one tidal period is j5.1017 erg/sec. (MS)

82. Te D S
Kraus, W. Temperatur, salzgehalt and dichte an der oberflache des Atlantischen Ozeans. Deutsche. Atlantische Expedition Meteor 1925-27. Wissenschaftliche Ergebrisse Dr. A. Defant, Band V/3. Berlin: Verlag Walter de Gruyter & Co., 1958. (410 p. incl. 41 plates.)

83. **D S T**

Kuhn, R. Atlas water masses and density stratification. Vol. 1: Western North Atlantic. Washington, D.C.: U.S. National Geographic Data Centre, 1967. (General Series, pub: G-9) (166 p. incl. 164 plates.)

This automatically plotted atlas is intended to present the information in the portion of the water column between 300 m and 3,000 m, and to serve as a new kind of inventory of the >350,000 oceanographic stations currently held in the archives of NODC. The atlas area, divided into 2-degree rectangles in regions with complex water mass-density structures and into 5-degree rectangles in more uniform regions, is shown on a map of Marsden squares. The 163 plots are prefaced by one page of text describing the source data and the method of presentation (Klein's) in which the conventional temperature-salinity plot is replaced by a salinity-density plot. Simultaneously, density is plotted against depth. Explanations of symbols and entries are given on a sample sheet. A temperature overlay for use in obtaining rough approximation of the temperature for the salinity-density curves on the plots and a very generalized North Atlantic Ocean water mass diagram are included (in pocket).

84. **Te**

Laviolette, Paul E. "A preview of newly constructed sea surface temperature charts of the Pacific, Atlantic and Indian Oceans." Pacific Science Congress Proceedings. V. 1-4 P.268. 11th Congress. Held Aug.23-Sept.2, 1966, at Tokyo, Japan. 1968. (Abstract only)

85. **Te**

Laviolette, P.E. and S.E. Seim. Monthly charts of mean, minimum and maximum sea surface temperature of the North Pacific Ocean. Washington, D.C.: U.S. Naval Oceanographic Office, 1969. (62 p.)

Charts are based on ship injection temperature data collected over more than 100 years.

86. **Cu**

Leblond, Paul H. "On the surface circulation in some channels of the Canadian Arctic archipelago." Arctic, v. 33, no. 1, Mar. 1980, p. 189-197. (ill., maps.) References. Published 1980.

This paper advances an explanation for the presence of surface currents in opposite directions on facing side of some of the main channels of the Canadian Arctic Archipelago. It is found that geostrophic dynamics coupled with geometrical constraints and the general direction of surface drift through the archipelago can readily account for the existence, if not all the properties, of the observed flow patterns.

87. P

Lebrasseur, R.J. Biomass atlas of net zooplankton in the Northeastern Pacific Ocean, 1956-1964. Manuscript report series oceanographic and limnological, No. 201. Ottawa: Canada. Fisheries Research Board, 1965. (14 p., 247 figs., no ABS., 1 ref.)

88. G

Lee, Valery and Carl Wunsch. Atlas of Mid-Ocean Dynamics Experiment (MODE - 1). Cambridge, Mass.: Massachusetts Institute of Technology, 1977. (274 p.)

89. P

Lindlay, J.A. "Continuous plankton records: A plankton atlas of the North Atlantic and North Sea: Supplement 3--Tintinnida (protozoa, ciliophora) in 1965." Bulletins of Marine Ecology, v. 8 no.3 (July 1975) p. 201-213.

90. I

Lindsay, D.G. Patterns of break-up, freeze-up and surface roughness of sea ice in selected channels in the Canadian Arctic. Polar Continental Shelf Project. Ottawa: Information Canada, 1977.

This brief description of the patterns of ice break-up, freeze-up and surface roughness for elected channels in the Canadian Arctic was prepared for the Polar Continental Shelf Project. It is not intended to be a definitive report. Its purpose is to generalize and indicate the typical trends. The Polar Continental Shelf Project has collected a large quantity of detailed information on sea ice conditions during consecutive seasons from 1961 through 1976 and this program is continuing. These records can provide the conscientious user with a great deal of information that, for simplicity, is not included in this summary.

The area considered for this study was selected because of the current interest in these channels. Similar information is available for all channels in the Canadian Arctic.

91. I

Lindsay, D.G. Sea-ice atlas of Arctic Canada, 1969-74. Polar Continental Shelf project report, SMP-1231E. Ottawa: Surveys & Mapping Branch; Energy, Mines and Resources Canada, 1977. (217 p.)

92. I

Lindsay, D.G. Sea-ice atlas of Canada, 1961-68. Polar Continental Shelf project report, SMP-1209E. Ottawa: Surveys & Mapping Branch; Energy, Mines and Resources Canada, 1975. (213 p.)

The results of aerial sea ice observations made by the Polar Continental Shelf Project, Department of Energy, Mines & Resources, at various intervals between March and November, from 1961 through 1968 are shown in this atlas. Most of the observations were made in Parry Channel, and in the general region of the Queen Elizabeth Islands and adjacent Arctic Ocean.

The atlas shows the geographical distribution and extent of the various types of sea ice, and their characteristic features at different specific and identified times throughout the years. The observations recorded on each map were made over as short a period as operationally feasible - usually three to eight days - in order to give a more or less simultaneous overall view of the state and extent of sea ice over the Canadian arctic at selected intervals.

The maps comprising the atlas have been arranged in sequence from 1961 to 1968. A seasonal summary is used to introduce each year and the written description for each map faces the map to which it refers. The various types of sea ice information are shown by a combination of colours, line patterns, symbols and numerical expressions.

It is intended that this atlas will be followed by others showing sea ice information obtained since 1968.

93. **Cu**

MacNeill, M.R. and J.F. Garrett. Open water surface currents in the southern Beaufort Sea. Beaufort Sea Technical Report No. 17, December 1975. (113 p.)

The chief objective of this study was to determine an overall picture of the offshore near-surface circulation in the Beaufort Sea south of the polar pack from Herschel Island to Cape Dalhousie using the direct observations of drifting drogues. This involved covering a very large geographical area in a limited length of time so that a technique for tracking drogues over a large area using aircraft was evolved.

94. **Te Ch S**

Mann, C.R., A.B. Grant and T.R. Foote. Atlas of oceanographic sections - temperature, salinity and dissolved oxygen - Northwest Atlantic Ocean (Newfoundland Basin and Gulf Stream) Feb. 1962 - July 1964. Dartmouth, N.S.: Bedford Institute of Oceanography, 1965. (55 p.)

95. **Cu W**

Marine Research Associates. Canadian Atlantic Offshore Fishery Atlas. Special Publication #47, Fisheries and Aquatic Sciences. Ottawa, December 1980. Compiled under contract by Marine Research Associates, St. Andrews, New Brunswick.

96. **I**

Markham, W.E. Ice atlas: Canadian Arctic Waterway. Hull, Quebec: Minister of Supply & Services, 1981. (232 p. including 200 colored maps.) 12-1/4" x 19-1/2". $120 in Canada.

97. **I**

Markham, W.E. Ice atlas: Eastern Canadian Seaboard. Hull, Quebec: Minister of Supply and Services, 1981. $7.50 in Canada

Covers 20 years, black and white, 96 pages 8-1/2" x 11".

98. **I**

Markham, W.E. Ice climatology of the Beaufort Sea. Beaufort Sea Project. Technical report, no. 26. December 1975. (87 p., 7 refs.)

99. **Te**
McDonald, Willard F. Atlas of climatic charts of the oceans. Washington, D.C.: U.S. Weather Bureau, 1938. No. 1247, 130 charts.

Charts derived from approximately 5-1/2 million observations taken on ships at sea during a period of more than 50 years. Data from islands and continents not introduced in order that the material may be truly representative of conditions on the open sea. Charts include winds, visibility, cloudiness, rainfall and thunderstorms and temperature for all oceans.

100. **G**
Montgomery, R.B. and M.J. Pollack. "Sigma-T surfaces in the Atlantic Ocean." Journal of Marine Research, v. V, no 1 (1942) p. 20-27. (incl. 6 plates.)

101. **Te S**
Moore, Carl T. Temperature and salinity values below 2,000 meters in the North Atlantic Ocean. U.S. Naval Oceanographic Office, Informal Manuscript Report No. 0-51-65, Nov. 1965. 12 p. 2 tables, charts (fold.).

A study of the relationship between temperature and salinity in 4 major water masses is presented for 11 deepwater basins in the North Atlantic Ocean. The data used constitute 7,030 paired temperature and salinity observations distributed from 2,000 meters to the bottom at 500-meter intervals. Characteristics of North Polar Water, North Atlantic Deep Water, North Atlantic Bottom Water, South Atlantic Deep Water, and the influence of Subarctic Water and Mediterranean Water result in significant spatial differences in the temperature and salinity values.

102. **G**
Muench, R.D. The physical oceanography of the northern Baffin Bay region. Baffin Bay-North Water Project Sc. Report, No. 1. Calgary: Arctic Institute of North America, 1971. (150 p.)

103. **Te D S**
Muromtsev, A.M. Atlas of temperature, salinity, and density of water in the Pacific Ocean. Moscow, Akademiia Nauk SSSR, 1963. 120 p. Ed. by Iu. V. Makerov. Added title page in English. Table of contents and pref. in Russian and in English. Almost entirely tables.

...This Atlas, compiled by the State Oceanographic Institute (GOIN) of the Main Administration of the Hydrometeorological Service of the USSR contains profiles of vertical distribution of temperature, salinity, and density of water for the eastern, central and western parts of the Pacific Ocean and maps of horizontal distribution of these elements for standard levels from 0 to 5000 m. The data of about 30,000 deep water stations used in compiling the Atlas include the copious materials collected by the IGY World Data Center B (Moscow) from many countries. The maps of temperatures for the surface of the ocean, and the bathymetric map of the Pacific, published in the Morskoi Atlas were used in the preparation of this atlas.

104. G I Te

Mustafin, N.V. "Oceanological investigations in the Arctic." Problems of the Arctic and Antarctic; collection of articles. Vol. 36-37. Edited by A.F. Treshnikov. New Delhi: American Publishing Co., Pvt. Ltd., 1973. (p. 18-45)

Oceanographic surveys, Sea level, Water temperature, Sea ice distribution, Ice forecasting, Bibliographies, Arctic Ocean.

105. Cu

Netherlands. Meteorologisch Instituut. Oceanographyic and meteorological observations in the Atlantic Oceans. June to August 1870 - 1922, 1870 - 1925, March to May 1856 - 1920

Roses. Ocean currents (16 points of the compass) for 5-degree squares in the Atlantic Ocean, 50 degrees N - 50 degrees S, arrows indicate frequency of direction and speed in nautical miles in 24 hours. Arrows (10-degree squares) showing general circulation of sea surface, direction frequency and speed in nautical miles in 24 hours. Mean isotherms (degrees C) air and sea surface, and tabular means for each 2 degrees with few exceptions. Map showing limits of drift ice.

106. W

Neu, H.A. Wave Climate of the Canadian Atlantic Coast and Continental Shelf. Atlantic Oceanographic Laboratory, Report 1971-10. Dartmouth, N.S.: Bedford Institute, 1970

This volume contains an unusual and concise form of presenting wave data, showing frequency and direction distribution by month and by 2-1/2 degree squares for the area (42-1/2 degrees - 57-1/2 degrees N) (70 degrees - 45 degrees W). The climatic data presented is based on only 1-year observations from all shipping reports and the wave height analyses of the CFMETOC Centre, Halifax.

107. **Cu Te Ch**
Newton, J.L. et al. Atlantic Water circulation in the Canadian basin. Technical report, TR-9. Seattle, Wash.: Washington (State) University. Department of Oceanography. Dec. 1974 (16 p.)

108. **Te Ch Cu D**
North Pacific Oceanographic Expedition. Oceanic observations of the Pacific 1955, the NORPAC Atlas. Berkeley: University of California Press; Tokyo: University of Tokyo Press, 1960. 9p. 123 charts (fold.). 54 x 39 cm.

"Atlas of temperature, salinity, oxygen phosphate, density, current measurements, and geopotential anomaly and data of such of the biological materials as could be prepared for the entire area."

The Atlas contains charts of horizontal and vertical distributions of certain of the physical properties measured by the NORPAC Cruises. In addition to biological data, it also includes charts of atmospheric pressure, surface temperature, and surface currents. The NORPAC expeditions included 1002 hydrographic stations surveyed by nineteen vessels representing fourteen institutions. They covered the Pacific Ocean north of 20 degrees north latitude. Most of the work was done in July, August, and September of 1955. The data from the hydrographic stations have been used to prepare maps of temperature, salinity, dissolved oxygen, inorganic phosphate-phosphorus and thermosteric anomaly at depthds of 10, 50, 100, 200, 400, 600, and 1000 meters. The geopotential anomaly of the 0, -200, and 400--decibar surfaces relative to the 1000--decibar surface has been computed and mapped. The geopotential anomaly of the 0, -200 and 400--decibar surfaces relative to the 1000-- decibar surface has been computed and mapped. The upper thousand meters of the fields of temperature, salinity, dissolved oxygen and inorganic phosphate- phosphorus, and the thermosteric anomaly are portrayed also on vertical sections along four parallels and five meridians. The maps and sections include representations of specific volume anomaly rather than of density. The field contoured is that of the pressure-independent part of the specific volume anomaly since this more nearly approximates the potential volume anomaly. Base maps, plotting sheets, common place names and charts are included. Tables of values of Sigma-T corresponding to the values of thermosteric anomaly used on the maps and sections and a table explaining the nets and methods of hauling for the zooplankton and fish larvae for which data are included.

109. G
Owen, R.W., Jr. Atlas of July oceanographic conditions in the northeast Pacific Ocean, 1961-64. U.S. Fish and Wildlife Service, Special Scientific Rep., Fisheries No. 549, Jan. 1967.

110. Te S
Pattersson, V. Cartes synoptique trimestrielles donnant la temperature et la salinite de l'eau de surface de l'ocean Atlantique Nord. [S.l.]: [Bureau Central du] Conseil International pour l'Exploration de la Mer, 1930. (4 p. plus 7 plates.)

111. Te
Pyle R. Sea surface temperature regime in the Western North Atlantic 1953-1954. Serial atlas of the marine environment, Folio 1. New York: American Geographical Society, 1962. (4 p. plus 28 col. plates.)

This folio consists of a set of plates with one of more maps showing the distribution of data, average surface temperature, difference in surface temperature, spring warming, autumn cooling, winter range of surface temperature, summer range of surface temperature, winter minimum surface temperature, summer maximum surface temperature, and annual range of surface temperature. Analyses of the data are provided in the text.

112. I
Ramseier, R.O. et al. Distribution of the ice thickness in the Beaufort Sea. Beaufort Sea Technical Report No. 30, December 1975, 98 p.

113. **Te S**

Reed, Ronald K. Temperature sections with surface salinity and sigma-T values for the Northeast Pacific Ocean, 1961 through 1965. Seattle, Wash.: Pacific Oceanographic Lab., Physical and Chemical Branch, 1966.

Twenty-nine temperature sections drawn from bathythermograph observations by Coast and Geodetic Survey (C and GS) ships along selected tracks in the Northeast Pacific, 1961 through 1965, are presented. Surface salinity and sigma-t values are shown for 15 of the tracks.

114. **S Te D Ch**

Reid, Joseph J. Jr. Intermiediate waters of the Pacific Ocean. Baltimore: Johns Hopkins Press, 1965.

115. **Te S D Ch**

Reid, Joseph L. Northwest Pacific Ocean waters in winter. Baltimore and London: Johns Hopkins University Press, 1973.

116. **Te S Ch**

Reid, Joseph L., Jr. Oceanography of the northeastern Pacific Ocean during the last ten years. California. Marine Research Committee, California Cooperative Oceanic Fisheries Investigations Reports, Vol. 7, pub. Jan. 1960. 77-90. 18 figs., 4 refs.

Oceanographic data obtained during the past ten years in the northeastern Pacific Ocean are reviewed and recent deviations pointed out. Vertical profiles of temperature, salinity, and dissolved oxygen were drawn and variations indicated. By early 1957 a substantial warming of surface waters over the past eight years was noted. Salinity anomalies were also noted.

117. **Te**

Riehl, Herbert. Sea surface temperatures of the North Atlantic, 1887-1936. Chicago: University of Chicago, Dept. of Meteorology, Jan. 1956. (Contract N6ori02036, Report on Research (unnumbered). (9 p. 11 figs., almost entirely charts.)

Monthly charts of ocean temperatures over the N. Atlantic from Jan. 1888 to Dec. 1936 give data (for each 5° square) on the departure from "normal" to whole degrees Fahrenheit based on seasonally "smoothed" data. Long period, semiperiodic variations or trends are shown, and these trends vary with latitude and longitude. Some charts of annual anomaly are presented, showing anomaly centers that seem to be connected with general circulation anomalies and with changes in frequency and path of hurricanes as shown in a number of analytical charts.

118. **Te S Ch**

Robertson, D.G. et al. Oceanographic atlas of Ocean Weather Station "Papa" 1956-1963. Canada. Fisheries Research Board, Manuscript Report Series (Oceanographic and Limnological), No. 187, Jan. 26, 1965. 22 p. + 157 figs., 3 tables, 27 refs.

This Atlas is presented as a supplement to the records of oceanographic data collected at Ocean Station "P" (lat. 50°N, long. 145°W) during the period Jan. 1, 1956 to Dec. 31, 1963. The sources of these data are listed in the references. The Atlas consists of the following: (1) a bibliography of publications in which oceanographic data from Ocean Station "P" have been used. This list was compiled from replies to a letter survey of oceanographic and related agencies; (2) tables and graphs of monthly mean values of sea- surface temperature, surface salinity and "potential layer depth" (depth of the seasonal thermocline) (Tully and Giovando, 1963); (3) graphs of surface, 100-m and 122-m temperatures obtained from bathythermograms; (4) vertical sections of temperature, salinity, dissolved oxygen, inorganic phosphate, nitrite and silicate obtained from analyses of serial samples, obtained from hydrographic casts.

119. **Te S**

Robinson, M.K. North Pacific atlas of surface layer monthly mean temperatures and annual salinities. Rome, Italy: FAO, 1976.

120. **Te**

Robinson, M.K. and R.A. Bauer. Atlas of monthly mean sea surface and subsurface temperature and depth of the top of the thermocline - North Pacific Ocean. Monterey, Calif.: Fleet Numerical Weather Central, 1971 (24 p. plus 72 fig. Atlas available in a computer form.)

121. Te
Robinson, Margaret K. "Sea temperature in the Gulf of Alaska and in the Northeast Pacific Ocean, 1941-1952." California. University Scripps Institution of Oceanography, Bulletin, v. 7, no.1(1957) p. 1-98. 61 figs., 17 tables, bibliog. p. 94-98.

The results of the analysis of 16, 103 individual bathythermograph temperature observations and 129 serial reversing thermometer observations in the Gulf of Alaska and Northeast Pacific Ocean are presented in between the surface and 400 ft. In addition there are charts of average annual temperature cycles, average vertical temperature sections, typical individual bathythermograph temperature curves, and typical T-S curves in the area. The major features in the temperature distribution are discussed. A statistical analysis of temperature variation at three locations within the area is presented.

122. W
Roll, H.U. Height, length and steepness of sea waves in the North Atlantic. Technical and research bulletin No. 1 - 19. New York: Society of Naval Architects and Marine Engineers, 1958. (98 p.)

123. P
Roskell, J. "Continuous plankton records: A plankton atlas of the North Atlantic and the North Sea. Supplement 2--The oceanic cirripede larvae, 1955-1972." Bulletins of Marine Ecology, v. 8, No. 3 (July 1975) p. 185-199.

124. Cu D S
Savy, --. Density, salinity and currents of the Atlantic Ocean. Annales Hydrographiques, Paris, Series 1, Vol. 31:620-691, 1868. Maps (fold.), charts (fold.), tables.

125. G
Sayles, Myron. Oceanographic atlas of the Bering Sea basin. Seattle: University of Washington Press, 1979. 158 p.

126. G
Schott, Gerhard. Geographie des Atlantischen Ozeans. Hamburg, 1926. XII, 330 p. 1 color, front illus., XXVII charts (part fold) 28 cm.

The 1912 and 1926 editions are somewhat similar. 1942 edition was not available when this card was prepared. Coloured maps, Atlantic Ocean, depths in metre in the Azores region, and between English Channel and New York, also North Polar regions and northern European seas; water colour in percent of yellow (Forel scale); salt content at surface 0/100; mean sea surface temperature (°C) February, May, August, November, and annual; density of surface sea water; mean annual variation of sea surface temperatures (°C), temperature anomalies sea surface, temperature (°C) at 100, 200, 400, 1,000 metredepths, surface current flow, velocity in 24 hours (knots), stability (percent) and limits of ice, Northern winter; warm and cold currents; air temperature (°C) February, May, August, November and annual, mean annual variation, temperature anolmalies, difference between mean air and sea without gravity correction and wind arrows, direction and force February and August; mean annual cloudiness 0 - 10; monthly and annual isohyets, also cover South America, Western Europe, Africa and Eastern United States, and boundaries of regions with snowfall. Also maps of geological formation on ocean bottom, whaling grounds, etc.

127. G

Schott, G. Geographie des Atlantischen Ozean. Hamburg: Verlag Von C. Boysen, 1944. (438 p. plus 28 plates in color.)

128. G

Schott, G. Geographie des Indischen und Stillen Ozeans. Hamburg: Verlag Von C. Boysen, 1935. (415 p. plus 37 plates, most in col.)

129. Te Cu

Schroeder, Elizabeth H. North Atlantic temperatures at a depth of 200 metres. Serial atlas of the marine environment, Folio 2. New York: American Geographical Society, 1963. (2 p. plus 9 plates in color plus 11 pages data)

This folio presents temperature conditions at a depth of 200 m in the North Atlantic. Charts showing the average temperature, the range of observed temperature, deviations from the mean, and seasonal distribution of data are included. These charts are compared with other 200 m temperature charts (Wust and Defant, 1936) (Fuglister, 1954). Shown in tabular form are the average, maximum and minimum temperatures, number of observations included in the average, and the seasons represented for each unit area. This series of charts illustrates that major currents are represented in the temperature distributions. On the average temperature charts, the currents coincide with the pronounced horizontal gradients. They are shown in a separate plate by zones of maximum range, and in another plate by the continuity of more than 2-degree positive anomalies. In comparison, it is seen that over most of the North Atlantic, temperature conditions are remarkably stable.

130. **Te**

Schroeder, Elizabeth H. "Average monthly temperatures in the North Atlantic Ocean." [Woods Hole (Mass.) Oceanographic Institution, Ref. No. 65-45, Aug. 1965.] Reprint from Deep-Sea Research, Oxford, V. 12. (1965) p. 323-343 14 figs. (profiles), table, 12 refs.

A series of average monthly profiles showing the vertical temperature distribution between the surface and 300 m along 8 meridians in the North Atlantic, north of lat. 20°N, are presented and the major features are identified and described. On the assumption that pronounced horizontal temperature gradients are indicative of ocean currents, the circulation patterns are discussed.

131. **Te**

Schroeder, Elizabeth H. "Average surface temperatures of the Western North Atlantic." Bulletin of Marine Science, v. 15, no. 2 (June 1966) p. 302-323. (27 Figs., 24 Refs.)

132. **Cu**

Schumacher, Arnold. "Monthly charts of surface currents in the North Atlantic Ocean (5°S to 50°N)." Annalen der Hydrographie und Maritimen Meteorologie, V. 68, No. 4(1940) p. 109-123. 2 figs., 5 tables, foot-refs. German summary p. 109. (Berlin).

133. **T**

Schwiderski, E.W. Global ocean tides. Part II: The semidiurnal principal lunar tide (M2), atlas of tidal charts and maps. Dahlgren, Va.: Naval Surface Weapons Centre, 1979. (90 p.)

134. **Te**

Scripps Oceanographic Institute. World atlas of sea surface temperatures. Second edition. Washington, D.C.: U.S. Navy Hydrographic Office, 1944. (1 pl. plus 48 plates in color)

Believed to be the most accurate pattern of sea surface temperatures of the world prepared to date (1944). Isotherms are shown for intervals of 5 degrees F, except that in regions of small horizontal temperature gradients, 2.5-degree isotherms have been entered. Information on ice limits shown.

135. **Te**

Shishkov, Iu. A. "Temperature anomalies in the North Pacific Ocean." Okeanologiia, Moscow, V.6. no.6 (1966) p.416-429. Figs., tables, refs., eqs. English summary p. 429. Transl. into English in corresponding issue of Oceanology, Wash., D.C.

The years characterized by the maximum water temperature anomalies are indicated and the distribution of anomalies in the surface layer of the Northern Pacific is shown. Charts are given of temperature anomalies in Aug. for the most anomalous years.

136. **Cu**

Somerville, Boyle T. Ocean passages for the world. Winds and currents. London: H.M. Stationery Office, 1923. 585 p. tables, fold. maps.

Includes sections on the winds, currents and steamship routes of the Atlantic (p. 22-186), Indian (p. 187-233) and Pacific (p. 234-424) Oceans. Large folding map entitled "Atlantic, Indian and Pacific Oceans, diagrams of oceanic winds" in cover pocket shows average wind direction for Jan.-March, April-June, July-Sept. and Oct.-Dec. for all the oceans.

137.

Cu I

Soule, Floyd M. The normal dynamic topography of the Labrador Current and its environs in the vicinity of the Grand Banks of Newfoundland during the iceberg season. Woods Hole, Mass: Woods Hole Oceanographic Institution, 1964 Ref. No. 64-36. 9 p. text + 12 charts (fold.).

138. **Te**

Stoddard, Ruth R. Average monthly sea-water temperatures, Nova Scotia to Long Island -- 1940-1959. Serial atlas American Geographical Society, 1972.

139. **I Cu**

Swithinbank, Charles. Ice atlas of arctic Canada. Ottawa: Surveys and Mapping Branch, Department of Mines and Technical Surveys, 1960. (65 p. including 67 maps.)

Prepared at Scott Polar Research Institute, Cambridge, England. 30" x 14" Approx. Available at National Library of Canada, Map collection. A compilation from 324 station, commonly 5 to 10 yrs. observations. Includes maps of mean current, mean extent of fast ice, and ice frequency charts, up to 1957.

140. **G**

United National Educational, Scientific and Cultural Organization. Oceanographic atlas. Paris: Unesco, 1974-. (loose-leaf in binder.) (v. I: Physical oceanography <data taken during Equalant I and II>. 1974. £16.80.)

141. **Te**

U.S. Bureau of Commercial Fisheries. Monthly mean charts, sea surface temperature, north Pacific Ocean 1949-1962 Washington, 1968. (unpaged).

G

142. U.S. Dept. of Commerce. Alaska Continental Shelf Environmental Assessment program: Final report and atlas. Washington, D.C.: U.S. Dept. of Commerce, Research Unit 347. 3 vols.

Available from: Superintendent of Documents, AEIDC, 707 A Street, Anchorage, Alaska 99501. Volume II is of particular interest: Physical oceanography and meteorology.

143. **Te D**

U.S. Dept. of Commerce. National Ocean Survey. Surface water temperature and density Atlantic Coast, North & South America. 4th ed. Washington, D.C.: U.S. Government Printing Office, 1973.

144. **Te**

U.S. Fish and Wildlife Service. Monthly mean charts: sea surface temperature, North Pacific Ocean. U.S. Fish and Wild Life Service Circular 134, April 1962. v p. + 36 charts (in color), 40 x 56 cm.

...This is the first in a series of monthly sea surface temp. chart atlases intended to cover the period 1950-59, inc. which has been adapted for international use in studies of the oceanography and fisheries of the eastern tropical and northeast Pacific Ocean. 1956 and 1957 were chosen because in 1957 anomalous warming began along the eastern north Pacific Ocean. Earlier and later years will be covered in subsequent volumes. The data used are marine weather observations in Punched Card Deck 116 entitled U.S. Merchant Marine and Other Ship Observations, 1949--at the National Weather Records Center at Asheville, N.C. Each monthly chart contains both edited data for 2° squares of lat. and long. from 20°S to 60°N for the entire Pacific Ocean except for the bordering seas, and smoothed isotherms for each 1°C. In addition the sea surface temp. change between 1956 and 1957 is shown in separate charts for each month of 1957. Changes of more than 1°C are considered real and are shown by red hatching for warming area and blue for cooling areas. Warming of as much as 5°C in places occurred, east of 170°W (Jan. and Aug.) and cooling of as much as -7°C (Aug.) to the west of 170°W. On the monthly charts the number of individual observations in the 2° square as well as the monthly mean temp. in degrees and tenths (F) are given.

145. **Te**

U.S. Hydrographic Office. Monthly surface temperature charts of the North Atlantic Ocean. Its H.O. Misc. 10555. (n.d.)(Washington).

146. **T Cu I B W G**

U.S. Hydrographic Office. Oceanographic Atlas of the Polar Seas. Part 2: Arctic Washington D.C.: U.S. Naval Oceanographic Office, 1958.

147. **Te**

U.S. Hydrographic Office. Pilot charts for the North Pacific. Monthly means for October and November. U.S. Hydrographic Office, 1894-1950. All charts.

... Monthly charts show North Pacific, 5°S-75°N, 115°E-80°W and include ice limits in Okhotsk and Bering Seas. Backs of charts contain extensive wind and temperature data and well illustrated articles on such subjects as sea fog, rescue work at sea, typhoons, etc.

148. I

U.S. Hydrographic Office. Report of ice operations, Labrador Sea, Baffin Bay, and the Canadian Arctic, Summer 1952. 21 plates (some fold), 41 refs. Also its: Report of ice observations and forecasting for the season 1953 (2nd annual report). Its H.O. Misc. 15869, 1953, publ 1954. (65 p. 44 plates, photos (fold.), charts.)

In the first annual report, results of aerial ice reconnaissance flights by Navy patrols, RCAF, U.S. Air Weather Service, MATS and other flights over the Labrador Sea, Baffin Bay and Davis Strait (as well as reports from icebreakers), are summarized for the period March-sept. 1952 and colored fold-charts for each week from April 29-Sept. 29, showing details of ice conditions in the area included along with the extensive narrative of ice and weather conditions during the season. Forecast procedures and detailed recommendations for future seasons outlines. Photographs of ice conditions, a good bibliography and sample observers forms, charts, etc. are included. The 2nd annual report gives similar information for the navigation season of 1953, with emphasis on planning, reconnaissance, forecasting and dissemination of reports and forecases for operational use.

149. W

U.S. Hydrographic office. Sea and swell charts N. Atlantic. 1943 Wind and sea swell are shown on monthly charts.

150. I

U.S. Navy Fleet Weather Facility. Eastern Arctic Sea ice analyses, 1972-1975. Suitland, Maryland, 1976. (212 p.) See also Western Arctic

The principal aim of this publication is to provide operators and researchers with historical weekly hemispheric analysis of sea ice conditions derived principally from satellite imagery supplemented by conventional observations. The charts constructed by Navy ice analysts under operational time constraints from satellite imagery and conventional data. Reanal ysis with late data was not normally attempted; rathe the current analysis was prepared incorporating this to the extent possible. The analysis was compared with available climatology in an attempt to eliminate gross errors.

151. I

U.S. Navy Fleet Weather Facility. Western Arctic Sea ice analyses, 1972-1975. Suitland, Maryland: 1976. (212 p.) See also Eastern Arctic.

152. I

U.S. Navy Hydrographic Office. Ice atlas of the Northern Hemisphere. 1946, revised 1960. (H.O. #550) 25" x 14".

Topics include annual numbers of icebergs and growlers between 1911-1940 and number of years in same period in which iceberg and growlers were reported; limits of ice for years 1898-1938. Numerous stations. Available at National Library of Canada, Map Collection.

153. T Cu W B G I

U.S. Naval Oceanographic Office. Oceanographic atlas of the north Atlantic Ocean. 6 volumes. Washington, D.C.: U.S. Naval Oceanographic Office, 1963-1968.

H.O.P. publication 700. Vol. I - Tides and currents (1965); Vol. II - Physical prospects (1967); Vol. II - Ice-cover; Vol. IV - Sea and swell (1963); Vol. V Marine geology (1965); Vol. VI - Sound velocity (1967).

154. B

Wacasey, J.W. Biological productivity of the southern Beaufort Sea: zoobenthic studies. Beaufort Sea Technical Report No. 12b, December 1975. (39 p.)

Baseline data obtained from a sampling program carried out from 1971 through 1975, primarily during the open water season, demonstrate the existence of zonation of zoobenthos across the shelf of the southern Beaufort Sea. These zones, which can be characterized physically and biologically, are designated: (1) Estuarine Zone, (2) Transitional Zone, (3) Marine Zone, and (4) Continental Slope Zone.

Approximately 337 species have been identified from the study area. Average biomass is estimated to be 6g m^{-2}.

155. Cu
Wegemann, G. Surface currents of the North Atlantic north of 40°N. Lat. Kiel, 1899.

156. Te
Weiler, J.D.M. and J.R. Keeley. Monthly sea surface temperature for the Gulf of St. Lawrence. Marine Environmental Data Service, Technical report, no. 7. Ottawa: Dept. of Fisheries and Oceans, 1980.

This report presents the results of the analysis of about 35 years of sea surface temperature data measured by bathythermographs in the Gulf of St. Lawrence. The results are displayed as maps of monthly sea surface temperatures, and represent the average conditions to be found from the data. Optimum interpolation was used to analyze and contour the data. Use of this technique showed that yearly variations in the sea surface temperature are larger than measurement variations within a month. This fact allowed a considerable reaction in the necessary computations.

157. G
Wilhelmshaven. Germany. Marineobservatorium, Klimadiest. Pacific Ocean climatic charts 1940. Also: Atlantic Ocean climatic charts 1940. (charts and tables)

158. P
Williams. R. "Continuous plankton records: A plankton atlas of the North Atlantic and North Sea: Supplement 4--The ostracoda in 1963." Bulletins of Marine Ecology, V. 8 no. 3 (July 1975) p. 215-228.

159. P
Williams R. and M.A. Wallace. "Continuous plankton records: A plankton atlas of the North Atlantic and North Sea: Supplement 1--The genus clausocalanus (Crustacea: Copepoda, Calanoida) in 1965." Bulletins of Marine Ecology, v. 8 no.3 (July 1975) p. 167-184.

160. T S D Ch Cu W
Williams, Robert G., Frederic A. Goodshall and Eugene M. Rasmusson. Summarization and interpretation of historical physical oceanographic and meteorological information for the mid-Atlantic Region : final report to the Bureau of Land Management U.S. Dept. of the Interior. Washington, D.C.: U.S. Dept.

Commerce, National Oceanic and Atmospheric Administration, Environmental Data Service, 1977. (Reprint.)

This report describes the results of an environmental study of the mid-Atlantic region of the Outer Continental Shelf performed under inter-agency agreement AA 550-IA6-12 between the Bureau of Land Management, U.S. Department of the Interior, and the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. The mid-Atlantic region as defined for this study is the area extending northward from 38°N to 41°N between the coast and the 2,000 m isobath.

The study consisted of three tasks:

- To summarize historical meteorological and oceanographic data for the region.
- To analyze the historical data summaries.
- To draw conclusions from the analysis and to recommend design for future field programs to fill e. sting data gaps.

The meteorological data used were obtained primarily from the National Climatic Center, Asheville, North Carolina. They include National Weather Service coastal station records and standard shipboard marine surface observations, supplemented by ocean weather station and meteorological buoy measurements. Most of the oceanographic data were obtained from the National Oceanographic Data Center, Washington, D.C., with complementary data sets provided by private institutions.

161. Te I
World atlas of sea surface temperatures. Second edition. Bay St. Louis, Miss.: Naval Oceanographic Office NSTL. Station, 1973. (200 p.)

162. G
World Ocean Atlas. Moscow, U.S.S.R.: Ministry of Defence, 1974-1978. 2 vol.

Distrib. in W. Europe and N. America by Pergamon Pr., 1976 with Introduction & Index vols. in English.

v.1 - Pacific Ocean; v.2 - Atlantic & Indian Oceans.

163. Cu

Worthington, L.V. On the North Atlantic circulation. Baltimore and London: Johns Hopkins University Press, 1976.

The North Atlantic Ocean can be considered as the northern half of a long fiord, open at its southern end but blocked in the north, except for small inflow, 1 x 10^6 m^3/s, which ultimately comes from the Pacific. The net meridional flow in the North Atlantic is thus 1 x 10^6 m^3/s southward. However, there are larger meridional flows that result from the modification and formation of water masses by the atmosphere. For example, warm surface water from the eastern North Atlantic flows northward to replace the cold bottom water that is formed in the Norwegian Sea and that, subsequently, flows southward along the North American continental slope. It is estimated that the maximum, permanent meridional volume transport is 13 x 10^6 m^3/s northward and 14 x 10^6 m^3/s southward.

It is postulated that the major circulation in the North Atlantic consists of two anticyclonic gyres that are found on its western side. The larger of these anticyclones, the Gulf Stream System, is mainly confined to the Sargasso Sea. The maximum Gulf Stream volume transport, 150 x 10^6 m^3/s toward the east, is found south of Nova Scotia, and an equal amount must return toward the west to conserve mass. The smaller anticyclone, which is situated to the east of the Grand Banks of Newfoundland, circulates between 63 and 95 x 10^6 mxy3/s. Anticyclonic circulation is thus roughly one order of magnitude greater, in terms of volume transport, than meridional circulation.

Meridional flows, to the nearest 1 x 10^6 m^3/s, are described by box models for five layers in the North Atlantic: the deep water, the lower thermocline, the mid-thermocline, the upper thermocline, and the warm water layers. Anticyclonic circulation is described by circulation diagrams for each of the same five layers with flow lines to the nearest 5 x 10^6 m^3/s. Both the box models and the circulation diagrams are wholly consistent with the water mass distribution in the North Atlantic. Attempts, by the author, to balance the anticyclonic circulation with strict geostrophy have failed and the presence of slow nongeostrophic flows appears, to him, to be inevitable.

164. **Te S**

Wright, W.R. and L.V. Worthington. The water masses of the North Atlantic Ocean: a volumetric census of temperature and salinity. Serial atlas of the marine environment, Folio 19. New York: American Geographical Society, 1970. (8p. plus 7 col plates.)

165. **Cu**

Wust, Georg. Quantitative investigations on the statics and dynamics of the Atlantic Ocean (6th installment), Current velocities and the magnitude of currents in the depths of the Atlantic Ocean. Deutsche Atlantische Expedition (Meteor), 1925-1927, Wissenschaftliche Ergebnisse. Vol. 6, Pt. 2. Berlin: Walter de Gruyter, 1957. p. 261-420. 6 figs., 37 plates, 50 refs. English summary p. 416-418.

Several volumes of the scientific result of the "Meteor" expedition of 1925/27 ahave been issued between 1932 and 1939 (see 5A-70, Jan. 1954, MAB). This excellent volume continues the analysis and presentation of the basic and derived data on: (1) the dynamics of the profiles and the deep sea current velocities, (2) the balance of net transport in the various layers on both sides of the Atlantic Central Ridge, and (3) the balance of salt transport in the two longitudinal troughs of the South Atlantic. Current velocities from 3 to 17 cm/sec are encountered along the west margin of the South Atlantic at deep levels with southerly components in the northern and northerly currents in the S. (Antarctic) portions. Velocities are higher than those estimated previously. Austausch coefficient (eddy diffusivity) averages 27-29 cm^{-1}g sec^{-2}. The work is packed with extensive tables, charts, cross-section, graphs, maps and a good bibliography.

166. **Te**

Wust, George. The stratosphere of the Atlantic Ocean: scientific results of the German Atlantic expedition of the research vessel Meteor, 1925 - 1927. Vol. VI, Section I. English translation edited by William J. Emery. Washington, D.C.: Office of the International Decade of Ocean Exploration & the National Science Foundation, 1978.

167. **Te S D**

Wust, G. and Defant, A. Atlas of the stratification and circulation of the Atlantic Ocean; cross section and charts of temperature, salinity and density. Meteor 1925 - 1927, Band VI. Berlin and Leipzig: Verlag Walter de Gruyter, Co. 1936. (103 plates, most in color.)

PART 3

INFORMATION SOURCES

PART 3

INFORMATION SOURCES

Introduction

This Part will convey two types of information. First, it will give names, addresses and/or telephone numbers of actual contacts made. Second, in many cases annotations are included, concerning the nature of institutional holdings, the productivity of sources or other pertinent information.

Every entry in the listings of sections 3.1, .2, .3, .4, represents a contact made in the course of the information search. Annotations have been added where it is felt these would be helpful but lack of annotation should not be taken to imply that a particular source was not productive.

3.1 - Data Bases

NTIS, Oceanic Abstracts, ASFA and AST produced a significant number of entries. One caveat for users of the data bases is that the data bases are not extensively retrospective, starting their holdings in the 1960's or 1970's. This fact made the library searches and personal contracts very important in completing this project.

COLD: Cold Regions Research and Engineering Laboratory. All disciplines dealing with Antarctica, the Antarctic Ocean and subantarctic islands; snow, ice and frozen ground; navigation in ice; civil engineering in cold regions; behavior and operation of materials and equipment in cold temperatures. Source materials include monographs, technical reports, journal articles, conference papers, patents and maps produced worldwide. (1962 to date). Hard copy yielded several bibliographic references, therefore should not be ignored in future data base searches.

OCEANIC ABSTRACT: Data Courier, Inc.
Covers worldwide technical literature about the oceans and seas of the world. Includes the areas of biology, fisheries, geology, meteorology, acoustics, optics, positioning, remote sensing, desalination, pollution, coastal resources, engineering, mining, diving, ships, submersibles, buoys, and laws and regulations. Over 2000 primary sources, government reports, and trade publications are scanned regularly.
(1964 to date)

GEO REF: American Geological Institute (AGI)
Provides primary coverage of the journal literature. About 25 percent of the sources are non-serial documents, such as books, separately authored chapters in monographs, government documents, conference proceedings, maps and theses. Subject coverage includes some 29 different geoscience areas, including minerology, geochemistry, geochronology, extra-terrestrial geology, petrology, marine geology, paleontology, stratigraphy, areal geology, structural geology, geophysics and economic policy. Produced one reference, should be considered for future searches.
(1964 to date)

NTIS: National Technical Information Service
Covers U.S. government-sponsored research and development technical reports from over 200 Federal agencies and some reprints, federally-sponsored translations, and foreign-language reports in areas of major technical interest. Multi-disciplinary scope includes aeronautics; agriculture; astronomy and astrophysics; atmospheric

sciences; behavioral and social sciences; biological and medical sciences; chemistry; earth sciences and oceanography; electronics and electrical engineering; energy conversion (non-propulsive); materials; mathematical sciences; mechanical, industrial, civil and marine engineering; methods and equipment; military sciences; mechanical, industrial, civil and marine engineering; methods and equipment; military sciences; missile technology; navigation, communications, detection, and countermeasures; nuclear science and technology; ordinance; physics; propulsion and fuels; space technology.
(1970 to date)

ASFA: Aquatic Sciences and Fisheries Abstracts
Sponsored by FAO, IOC (Intergovernmental Oceanographic Commission of UNESCO), and OETO (Ocean Economics and Technology Office of the United Nations Department of Economic and Social Affairs): supported by the Fisheries and Marine Service and WATDOC of Fisheries and Environment Canada.

January, 1978 to September, 1980	Abstracts
65,564 documents	Updated Monthly

AST: Arctic Science and Technology
Citations and abstracts concerning all aspects of the North, compiled by the Arctic Institute of North America at the University of Calgary.

4,684 documents

3.2 - Canadian Sources

3.2.1 - Canadian Federal and Provincial Government Departments

3.2.1.1 - Government of British Columbia

Ministry of Energy, Mines & Petroleum Resources
Parliament Buildings
Victoria, British Columbia
Pat Hrushowry (604) 387-5178

3.2.1.2 - Government of Canada

(a) Energy Mines and Resources
Third Floor, Room 350
601 Booth Street
Ottawa, Ontario

Canada Center for Remote Sensing
Ottawa, Ontario
Jean Heffernan -- (613) 995-1210

Surveys and Mapping Branch
Ottawa, Ontario
(613) 995-4385

Canada Map Office
Ottawa, Ontario
(613) 998-3865

Polar Continental Shelf Project
City Centre Tower
Fourth Floor, Room 402
880 Wellington Street
Ottawa, Ontario
Jacquie Voyce -- (613) 996-3388

National Atlas of Canada
Ottawa, Ontario
George Falconer -- (613) 992-7577

Geological Survey - Reference Library
Third Floor, Room 350
601 Booth Street
Ottawa, Ontario
Judy Wilkes -- (613) 995-4151

(b) Environment Canada
Ottawa, Ontario
(613) 997-2055
Reference Library
(613) 997-1767

Atmospheric Environment Service
Downsview, Ontario
Tom Kilpatrick
Andrew Sauleslzeja
Bill Markham
(416) 667-4726(7)

Atmospheric Environment Service
Ottawa, Ontario
Dave Mondry -- (613) 995-6730

Librarian - Atmospheric Environment Service
Pacific Region
739 West Hastings Street
Vancouver, British Columbia

Librarian - Atmospheric Environment Service
Department of Fisheries
Fontaine Building
Ottawa, Ontario

Canada Centre for Inland Waters,
Ocean & Aquatic Sciences
Burlington, Ontario
(416) 637-4341

Ice Forecasting Central
Ottawa, Ontario
Alex Beaton/Bill Markham
(613) 996-5237

Marine Programs Division
Water Pollution Control Directorate
Environmental Protection Service
Ottawa, Ontario
(819) 997-1221

Environment Protection Service
Calgary, Alberta
Bill Tistruzak -- (403) 266-7827

Environment Protection Service
Ottawa, Ontario
Brian Mansfield -- (613) 997-3800

Canadian Wildlife Service
Ottawa, Ontario
(613) 997-1687

- Arctic ecology map series only biological parameters, not oceanographic.

(c) Fisheries and Oceans
Ottawa, Ontario
Cuineas Boyle, Librarian
(613) 995-0338

Canadian Hydrographic Service
615 Booth Street
Ottawa, Ontario
Mr. Blantford -- (613) 995-4437

Arctic Biological Stn.
Fisheries & Oceans
555 St. Pierre Blvd.
Ste Anne de Bellevue, Quebec
Dr. Granger
June Curry, Librarian
(514) 457-3660

Pacific Biological Stn.
Fisheries & Oceans
Nanaimo, British Columbia
A.G. Dodimead
(604) 758-5202

Atlantic Biological Stn.
Fisheries & Oceans
St. Andrews, New Brusnwick
(506) 529-8854

Institute of Ocean Science
The Library
Box 6000
Sidney, British Columbia
Sharon Thompson, Librarian
Tony O'Connor
Dr. Tabata
(604) 656-8392

Bedford Institute of Oceanography
Dartmouth, Nova Scotia
Betty Sutherland, Head Librarian
Norm Savowitz, Systems Librarian
(902) 426-3675

- Including three divisions; Atlantic Oceanographic Laboratory, Marine Environment Laboratory, Atlantic Geoscience Centre

West Vancouver Laboratory
Fisheries & Oceans
4160 Marine Drive
Vancouver, British Columbia
Dr. Michael Waldichuk
(604) 926-4112

Halifax Laboratory
Fisheries & Marine Service
Box 550
Halifax, Nova Scotia
(902) 426-6250

Ocean & Aquatic Sciences Branch
580 Booth Street
Ottawa, Ontario

Marine Science & Information Directorate
Seventh Floor, 240 Sparks Street
Ottawa, Ontario
(613) 995-2039

Scientific Information and
Publications Branch
Ottawa, Ontario
Joanna Reinhart

(d) National Defense
Ottawa, Ontario
Directorate of Meteorology and Oceanography
Mr. R.L. Jones
(613) 995-4332

Oceanographic Services
Maritime Command Headquarters
Fleet Mail Office
Halifax, N.S.
W. Bailey, Oceanographic Consultant
(902) 426-4650

(e) National Research Council of Canada
Atlantic Regional Laboratory
Halifax, Nova Scotia
Annabelle Taylor, Librarian
(902) 429-6450

(f) National Library of Canada
Map Collection
Ottawa, Ontario
Louis Cardinal/Heather Stevens
(613) 995-1077

(g) Indian and Northern Affairs
East Arctic Marine Environmental Studies (EAMES)
Ottawa, Ontario
Ted Langtry, Oceanographer
(613) 997-0044

3.2.1.3 - Government of Newfoundland

Dept. of Environment
Elizabeth Towers
Elizabeth Avenue
St. John's, Newfoundland
(709) 737-2559

3.2.1.4 - Government of Nova Scotia

Dept. of Mines, Energy and Mineral Resources
Box 1087
Halifax, Nova Scotia
Valery Brisco, Librarian
(902) 424-4162

3.2.1.5 - Government of Prince Edward Island

Dept. of Fisheries
Box 2000
Charlottetown, Prince Edward Island
Map Library
Molly Armstrong
(902) 892-3493

- No mapping

3.2.1.6 - Government of Quebec

Dept. of Agriculture & Food
Maritime Fisheries Research Branch
(Direction de la Recherche Scientifique et Technique)
2700 rue Einstein
Ste-Foy, Quebec
Francoise Champagne
(418) 643-8084

Dept. of Energy & Resources
Energy Branch
1305 Chemin Ste-Foy
Quebec, Quebec
(418) 643-3724

3.2.2 - Canadian Companies, Institutes and Universities

3.2.2.1 - Companies

NORDCO Limited
Box 8833
St. John's, Newfoundland
Bob Gill, active director of oceanography group
(709) 754-2401

N.S. Research Foundation Corp.
Box 790
Dartmouth, Nova Scotia
Len Tufts
(902) 424-8670

Nickle Map Services
401630 - 6th Avenue, S.W.
Calgary, Alberta
T2P 0S8
(403) 269-7971

- This company sells maps showing oil wells drilled, drilling and land ownership. All maps based on National Topographic Service maps.

Dome Oil Limited
Calgary, Alberta
John Ward -- (403) 232-2869
Rich Hoos -- (403) 266-7838

- The oil companies are reputed to possess some atlas material which is released to a restricted public. We have not compiled this material because it is not generally available.

Canmar Marine Ltd.
Calgary, Alberta
Mr. Coleman Davis
(403) 266-7749

Palister Resource Management
Calgary, Alberta
Dr. A.E. Palister/Jeff Palister
(403) 263-3110

- mainly client-oriented research.

Arctic Petroleum Operators Association
Eastcoast Petroleum Operators Association
P.O. 1281, Postal Stn. N
Calgary, Alberta
Dr. Gordon Jones, Executive Director
(403) 265-1162

- APOA has produced upwards of 250 studies of which appoximately 170 are published. Some may contain atlas material. EPOA is beginning a study program.

Imperial Oil Ltd.
Marine Division
Toronto, Ontario
(416) 968-4111
Frontier Operations Group
Calgary, Alberta
Jim Lee -- (403) 267-5758

PetroCanada
Calgary, Alberta
Mike Baden/J.S. Brigden
(403) 232-8685

- Data sources, not mapped.

Sun Corp.
Calgary, Alberta
Bob Koenig
(403) 269-8655

Dome Exploration (Canada) Ltd.
365 Bay Street
Toronto, Ontario
Mr. Stone, Exploration Coordinator
(416) 364-3453

Pathfinder Air Surveys Ltd.
Ottawa, Ontario
(613) 828-2213

- This firm compiles maps based on air photos but only of land surfaces.

Rolph-McNally Ltd.
1689 Flint Road
Toronto, Ontario
(416) 663-2980

- This firm was the Canadian distributor of the Rand-McNally Atlas of the Oceans. See atlas entry under Bramwell, M., ed. Now no longer carried in Canada.

3.2.2.2 - Universities

McGill University
Centre for Northern Studies & Research
Montreal, Quebec
M.P. Langleben, Director
(514) 392-4311

- The main library has a depository collection for CMR. The centre has a small working collection.

Dalhousie University
Macdonald Science Library
Dalhousie, Nova Scotia
Susan Greaves, Map Librarian
(902) 424-3757

Memorial University
Ocean Information Center
St. John's, Newfoundland
Judy Wittich -- (709) 737-8377

Library
University of British Columbia
Vancouver, British Columbia

3.2.2.3 - Institutes

Atlantic Salmon Association
1434 St. Catherine Street, Ste. 109
Montreal, Quebec
Mr. Michael Price

- The Association publishes only 1 map, "Atlantic Salmon Rivers of North America", which does not cover ocean areas.

Royal Ontario Museum
Dept. of Ichthyology & Herpetology
100 Queen's Park
Toronto, Ontario
Dr. Emery
(416) 978-4836

Centre for Cold Ocean Resources Engineering (C-CORE)
Memorial University
St. John's, Newfoundland

3.3 - American Sources

3.3.1 - American Federal Government Departments

3.3.1.1 - United States Department of Commerce

National Oceanographic Data Center
Washington, D.C. 20235
(202) 634-7500
Richard Abram, Technical Information

World Data Centre A
Oceanography
Washington, D.C.
E. Godfrey Trammell
(202) 634-7249

- Administered by National Oceanographic Data Centre. Data holdings are international. Oceanography Data Exchange 1979. Catalog available free to qualified personnel; access by country, ship and cruise.

National Ocean Survey
Norfolk, Virginia
(840) 441-6616

N.O.S. Headquarters
Rockville, Maryland
Commander Rossi/R. Adm. Munson/Adm. Leopold
(301) 443-8204

Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington

National Ocean and Atmospheric Administration
Washington, D.C.
Frances Swin, Coordinator, Field Library
(301) 443-8287

National Weather Service
Eastern Region
585 Stewart Avenue
Garden City
Long Island, New York 11530

National Weather Service
Western Region
125 S. State Street
Salt Lake City, Utah 84111
(801) 524-5122

National Weather Service
Alaska Region
632 - 6th Avenue
Anchorage, Alaska 99501
Mr. Pat Pool -- (907) 271-5108

National Weather Service
Pacific Region
1149 Bethel Street
Honolulu, Hawaii 96813

National Weather Service
International Division
Maryland
(301) 443-8761

Office of Public Affairs
Department of Commerce
Rockville, Maryland 20852
(301) 443-8243

Data Acquisition Administration Center
Rockville, Maryland
Bob Walters/Sidney Tewles - Publications
(301) 443-8243

Library of Congress
10 First Street S.E.
Washington, D.C. 20540
(202) 287-5000

Environmental Data Information Service
Washington, D.C.
Thomas Potter
(202) 634-7318

- Distributing house for oceanographic information

U.S. Coast Guard
400 Seventh St. S.W.
Washington, D.C. 20590
(202) 426-2158

3.3.1.2 - United States Department of the Interior

Geological Survey
National Center
12201 Sunrise Valley Drive
Reston, Virginia 22092

- Good collection, but difficult to use.

3.3.1.3 - United States Department of Defense

Defense Mapping Agency
U.S. Naval Observatory, Building 56
Hydrographic/Topographic Centre
Washington, D.C. 20305
Bob Beaton
(202) 227-1364

- Hold computer listing of foreign charts.

U.S. Naval Oceanography Office
Commander, Naval Oceanography Command
Division of U.S. Oceanography Command
NSTL Station
Bay St. Louis, Mississippi 39529
Chief Coquia
(601) 688-4896

3.3.2 - American Companies, Institutes and Universities

3.3.2.1 - Companies

Oceanic Services
Santa Barbara, California
Bob Atwater
(805) 685-4521

- Publish for clients' use only.

3.3.2.2 - Universities

Professor Wendell Brown
Department Earth Sciences
University of New Hampshire
James Hall
(603) - 862-1718

Brian Pearch, Physical Oceanographer
Dept. Civil Engineering
University of Maine
ORONO, Maine

Coastal Engineering Research Council (Oceanography)
(CERC)
Dept. of Civil Engineering
Clemson University
Clemson, S.C. 29631
Bill L. Edge, Sec.

Sea Grant Association (Oceanography) (SGA)
c/o Sea Grant College Program
Marine Program Bldg.
University of New Hampshire
Durham, H.H. 03824
Dr. Robert W. Corell. Pres.
(603) 862-1053

3.3.2.3 - Institutes

National Marine Fisheries Service
Northeast region - 14 Elm St., Gloucester, Mass. 01930
Northwest region - 1700 Westlake Ave. N., Seattle, Wash
Mr. Pat Cook (206) 442-7795
Alaska region - 709 W., 9th St., Juneau, Alaska 99801

Sea Grant Association (Oceanography) (SGA)
c/o Sea Grant College Program
Marine Program Bldg.
University of New Hampshire
Durham, N.H. 03824
Marie Polk - Communications and Information
(603) 862-1053

Oceanic Society Expeditions (Oceanography) (OSE)
Fort Mason Center, Bldg E
San Francisco, CA 94123
Margaret M. O'Neill, Dir.
(415) 441-1106

Oceanic Society (Oceanography) (OS)
Stamford Marine Centre
Magee Ave
Stamford, CT 06902
Christopher Roosevelt, Pres
(203) 327-9786

Cold Regions Research & Engineering Laboratory
Hanover, N.H.

Woods Hole Press.
Woods Hole Institute and Marine Biological Laboratory
Massacheusette
Carolyn Wyn
(617) 548-1400 Ext. 2512

- Areas of interest: North and South Atlantic, Indian, Arctic and Antarctic Oceans. Maps are not catalogued, they are filed by agency. 400-500 atlases are catalogued and indexed by content.

Scripps Institute of Oceanography
San Diego
Paul Lebron, Map Librarian
William Goff
(714) 452-3274

- Canadian charts are the same as those of the U.S. Defense Mapping Agency.

Marine Technology Society (Oceanography) (MTS)
1730 M St., N.W.
Washington, D.C. 20036
John Tracey, Executive Director
(202) 659-3251

- Publishes a journal, quarterly.

National Ocean Industries Association (Oceanography) (NOIA)
1100 17th St., N.W. Suite 410
Washington, D.C. 20036
Charles D. Matthews, President
(202) 785-5116

International Oceanographic Foundation
(IOF)
3979 Rickenbacker Causeway
Miami Fl. 33149
F.G. Walton Smith, President
Faith Schaefer, Editor, Sea Secrets
(305) 361-5786

International Association for Physical Sciences
San Diego California
Dr. LaFrance
(714) 222-3680

Pacific Marine Centre
Seattle, Washington
(206) 442-7657 (telex - 442-4540)

3.4 - Other National and International Institutes

International Council for the
Exploration of the Sea (Oceanography) (ICES)
Palaegade 2-4
DK-1261 Copenhagen K, Denmark
Hans Tambs-Lyche, Gen Sec

Directorate Iceland Hydrographic Office
Iceland
G. Bergsteinsson

International Association for the
Physical Sciences of the Ocean (Oceanography)
(IAPSO)
c/o Dr. Eugene C. LaFond
LaFond Oceanic Consultants
P.O. Box 7325
San Diego, Ca 92107
Dr. Eugene C. LaFond, Sec
(714) 222-3680

International Hydrographic Organization
Monaco

World Meterological Association
Geneva, Switzerland

Intergovernmental Oceanographic Commission
UNESCO
Place de Fontenoy, 75700
Paris France

- f. 1960 to promote scientific investigation with a view to learning more about the nature and resources of the oceans through the concerted action of its members. Mems.: 99 governments

  Chair. Dr. A. Ayala-Castanares (Mexico); Sec. D.P.D. Scott. Publs. Summary Reports of Assembly Session (every two years), Biennial Reports of Activities, IOC Technical Series (irregular), IOC Guides and Manuals (irregular).

3.5 - Bibliographies

Ashby, Charlotte M. comp. Marine science newsletters - 1975; an annotated bibliography. NOAA technical memorandum EDS NODC-4. Washington, D.C.: National Oceanographic Data Centre, 1975. (30p.)

Ashby, Charlotte M., comp. Marine science newsletters - 1973; an annotated bibliography. NOAA technical memorandum EDS NODC-3. Washington, D.C.: National Oceanographic Data Center, 1975. (30 p.)

Bedford Institute of Oceanography. Library. Serials list, Sept. 1980. Dartmouth, N.S.

Chryssostomidis, M. Offshore petroleum engineering: A bibliographic guide to publications and information sources. New York, NY: Nichols Publishing Company, 1978.

Deacon, G.E.R., ed. Oceans; an atlas-history of man's exploration of the deep. 2d ed. London: Paul Hamlyn, 1968. (297 p.)

Dobson, D. and F. Jordon. The Labrador Sea: a bibliography of physical oceanography. BIO, Data Series, BI-D-78-5. Dartmouth, N.S.: Bedford Institute of Oceanography, 1978.

Donkin, Kate. Union List of atlases in Ontario Universities. Toronto: Council of Ontario Universities, 1976.

Dubreuil, Lorraine, comp. Directory of Canadian map collections. 3rd ed. Ottawa: Association of Canadian Map Libraries, 1977.

Lists descriptions of holdings: general specialization.

El-Sabh, M.I. Bibliography and some aspects of physical oceanography in the Gulf of St. Lawrence. Marine science manuscript report No. 14. Montreal: McGill University, 1969. (65p.)

Hacia, Henry. Annotated bibliography of climatic atlases and charts of the world. Vol. 2: Oceans, seas, islands. Washington, D.C.: U.S. Dept. of Commerce, 1970.

Harrison, Elizabeth A. Ecology of the marine environment: a bibliography with abstracts. Springfield, Va.: National Technical Information Service, 1975. (210 p.)

Hartman, Charles W., and Robert F. Carlson. Bibliography of Arctic water resources. Fairbanks: University of Alaska. Institute of Water Resources, 1970. (538 p.)

Hogden, Francis. Ocean Research Index, 1970. See Ocean Research Index below.

Hoduski, Bernadine E., comp. Environmental services bibliography. Rev. Kansas City: U.S. Environmental Protection Agency, 1973. (26 p.)

International maps and atlases in print. London & New York: Bowka Publishing Company, 1976.

Johnson, Philip R. and Charles W. Hartman. Environmental atlas of Alaska. Fairbanks, Alaska: College Institute of Arctic Environmental Engineering. University of Alaska, 1969. (iv, 111 p.)

Keehn, Pauline A. Bibliography on marine atlases. Washington, D.C.: National Oceanographic Data Centre, 1968. (184p.)

MacDonald, Ronald Gordon. Union list of atlases: consisting of the holdings of seven collections including the Provincial Archives, Simon Fraser University, University of British Columbia, U.B.C. Special Collections, University of Vancouver City Archives, Vancouver Public Library. (Burnaby, B.C.: S.N.), 1974.

Maritime information sources. A guide to current data. Special bibliography, 1979. 2nd ed. Marine Research Information Service. Special Publication. Washington, D.C.: National Acadamy of Sciences, 1979. (109p.).

National Oceanic and Atmospheric Administration. Environmental Data Service. *Director of NOAA Libraries and Information Centres*. Key to Oceanic and atmospheric information sources, 2. Washington, D.C.: U.S. Dept. of Commerce, 1977. (36 p.)

Nicholls, H.B. and Wendy Scott. *Publications by staff of the Bedford Institute of Oceanography 1962-1974: List of titles and index*. Report series, BI-R-75-7. Dartmouth, N.S.: Bedford Institute of Oceanography, May 1975. (102 p. microfiche).

Nicholls, H.B. and N.C. Sabowitz. *Reports by staff of the Bedford Institute of Oceanography 1962-1927: List of titles and indexes*. Report series, BI-R-74-4. Dartmouth, N.S.: Bedford Institute of Oceanography, April 1974. (126 p. microfiche).

Ocean Research Index: guide to ocean and freshwater research inlcuding fisheries research. 2nd ed. New York: International Publications Service, 1976. $135.00 U.S.

Rosenburg, D.H. *Bibliography of the oceanography and biology of the Northern Gulf of Alaska*. Fairbanks, Alaska: University of Alaska. Institute of Marine Science, 1975. (218 p.)

Scripps Institution of Oceanography Contributions. Available *only* to other scientific, research and educational institutions. For exchange information write: University of California, San Diego, Library Gifts and Exchange Department, C-075a, La Jolla, Calif. 92093.

Stommel, Henry and Michele Fieux. *Oceanographic atlases: a guide to their geographic coverage and contents*. Woods Hole, Mass.: Woods Hole Press, 1978.

Sverdrup, H.U., Martin W. Johnson and Richard H. Fleming. *The Oceans, their physics, chemistry and general biology*. New York: Prentiss Hall, Inc., 1942. (1087 p. 265 fig. 126 tables, 7 folded charts, bibliographyies eqs.)

Tessier, Yves. *Catalogue collectif des atlas des catrotheques universitaires due Quebec.* Quebec: Bibliotheque de l'University Laval, 1976

U.S. Army Corps of Engineers. *U.S.A. CRREL technical publications.* Hanover, N.H.: Cold Regions Research and Engineering Laboratory, Jan. 1978.

U.S. Coast Guard. *Bulletin.* Published 3 times a year, different topics.

U.S. Naval Oceanographic Office. *Catalog of Naval Oceanographic Office Publication.* Bay St. Louis, MS.: Naval Oceanographic Office, revised January 1981.

United States. Department of Commerce. Environmental Data Service. *ENDEX/OASIS, NOAA Environmental Data Key.* Washington, D.C. U.S.G.P.O., 1974. (6 p.)

United States. Department of Commerce. Environmental Data Service. *User's guide to oasis, oceanic and atmospheric science information system.* Rockville, Md.: May 1974. (viii, 55 p.)

United States. Department of Commerce, National Oceanic and Atmospheric Administration. *Sea Grant Publications Index 1968-1972.* NOAA-TM-EDS-ESIC-8,9. Rockville, Md.: 1972. (190 p. 2 Vols.)

United States. Department of Defense. *Defense Mappying Agency Catalogue of maps, charts and related products.* Part 2. *Hydrographyic products numerical listing of nautical charts and publications.* Washington, D.C.: Defense Mapping Agency. Office of Distribution Services, July, 1980.

3.6 - Periodicals

The following listing of periodicals was taken from Ulrich's International Periodicals Directory (19th ed. New York: Bowker, 1980.) The entries give the International Standard Serial Number (ISSN), the title, year first published, frequency of publication, publishers name and address, editor, special features and price.

AG

ACTA OCEANOGRAPHY ARGENTINA. (Text in Spanish; summaries in Spanish & English) 1977. s-a. International Association for the Physical Sciences of the Ocean, Comite Nacional, Buenos Aires, Argentina. (Affiliate: International Union of Geodesy and Geophysics, Comite Nacional) Eds. Gerardo Parker, Daniel Vara, Arturo Maihle. adv. bibl. charts. stat.

UR ISSN 0002-3450

AKADEMIYA NAUK S.S.S.R. INSTITUT OKEANOLOGII. TRUDY.* 1946. 2/yr. Akademiya Nauk S.S.S.R., Institut Okeanologii, Letnaya ul. 1, Lyublino, U.S.S.R. Indexed: Chem.Abstr.

UR ISSN 0002-3515

AKADEMIYA NAUK S.S.S.R. IZVESTIVA SERIYA FIZIKA ATMOSFERY I OKEANA. (Summaries in English and Russian) 1965. M. $41.40. Izdatel'stvo Nauka, Podsosenskii per., 21, Moscow K-62, U.S.S.R. (Subscr. to: Mezhdunarodnaya Kniga, Moscow, G-200, U.S.S.R.) Ed. A.M. Oboukhov. adv. bk.rev. charts. illus. index. circ. 1,000.

UK ISSN 0141-1187

APPLIED OCEAN RESEARCH. q. £35($91) C M L Publications, 125 High St., Southampton SO1 OAA, England. Eds. C.C. Mei, C.L. Kirk.

US

AQUANOTES. 1972. bi-m. Louisiana State University, Office of Sea Grant Development, Center for Wetland Resources Bldg., Baton Rouge, LA 70803. Ed. Sally T. Kuzenski. bk.rev. bibl. illus.

BL ISSN 0041-8854

ARQUIVOS DE CIENCIAS DO MAR. (Text and summaries in English and Portuguese) 1961. s-a. $20 or exchange basis. Universidade Federal do Ceara, Laboratorio de Ciencias do Mar, Avenida da Abolicao 3207 (Meireles), Caixa Postal 1072, Fortaleza, Ceata, Brazil. Ed. Antonio Adauto Fonteles Filho. circ. 1,500. Indexes: Biol.Abstr. Chem.Abstr. Zoo.Rec.

Formerly: Universidade Federal do Ceara. Estacao de Biologia Marinha. Arquivos.

AT

AUSTRALIAN MARINE SCIENCES ASSOCIATION. BULLETIN. q. membership. Australian Marine Sciences Association, c/o School of Botany, University of N.S.W., Box 1, Kensington, N.S.W. 2031, Australia. Eds. N. Milwark, R. Kenny. adv. bk.rev. circ. 600.

US ISSN 0007-4977

BULLETIN OF MARINE SCIENCE. (Text in English and Spanish) 1951. 4/yr. $30 to individuals: institutions £65. Rosenstiel School of Marine and Atmospheric Science, 4600 Rickenbacker Causeway, Miami, FL 33149 (Subscr. to Bulletin of Marine Science, Box 368, Lawrence, KS 66044) Ed. William J. Richards. bk.rev. abstr. charts. illus. index. cric. 930 (back issues avail.) Indexed: Aqua. Sci. & Fish.Abstr. Biol.Abstr. Chem.Abstr. Curr.Cont. Geo.Abstr. Ocean.Abstr. Pollut.Abstr. Sci.Cit.Ind.

Formerly: Bulletin of Marine Science of the Gulf and Caribbean.

CN ISSN 0008-2686

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